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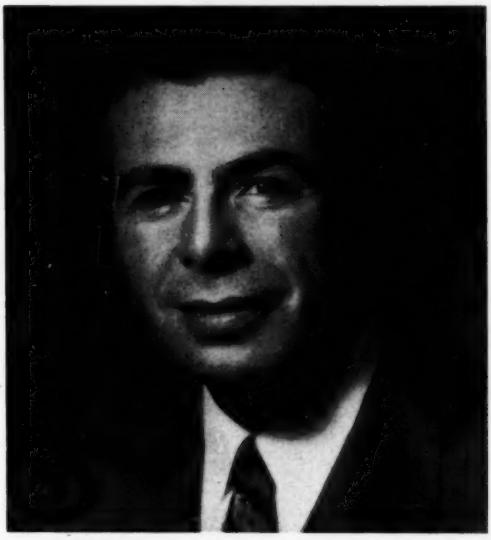

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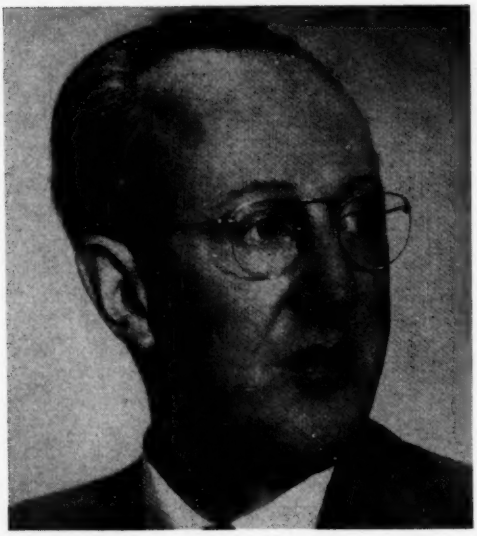

Ten years ago, I was invited to the First Annual Meeting of the American Academy of Dental Medicine. About fifty men—most of us were not members—assembled in a New York fraternity house to hear a program by local talent. Here I learned that a small group with a great vision had formed this new organization. Their ideas and ideals appealed to me. I was happy to join them.

At that time, the President could have driven his car and visited every member in an afternoon. Today with 750 members practicing from Canada to South America and from Europe to the Philippines, your President travels more often by plane than by automobile. He confers with Sections formed by members living in the same area. Every national meeting has a larger attendance than the previous one. Our Annual Meeting has grown from an afternoon to three days. Both the Annual and Mid-Winter meetings are scientific feasts topped off by an enjoyable social program for dessert.

The Tenth Annual Meeting, the details of which appear elsewhere in this issue, will be as exciting as you would expect of such a celebration. Residents of New York, Philadelphia and their environs will have their own plane and airport transportation. I have examined the hotel accommodations and found them luxurious. The program is one you cannot afford to miss. You probably will buy the text books of our essayists when they are released for publication. Why not get the information in advance and have the opportunity of questioning the author? There is every indication of an unprecidented crowd, so get your reservations in now to insure a room in the same hotel.

We have taken another step forward. The American Board of Oral Medicine has been formed. The members are:

Dr. Samuel Charles Miller, Professor of Periodontia and Oral Medicine, New York University, Chairman.
Dr. Lester W. Burket, Dean and Professor of Oral Medicine, University of Pennsylvania, Secretary.
Dr. Joseph F. Volker, Dean, School of Dentistry, University of Alabama.
Dr. Hermann Becks, Professor of Oral Medicine, University of California.
Dr. Irving Glickman, Professor of Oral Pathology and Periodontia, Tufts University.
Dr. Harold Gelhaar, Past-President and Fellow of the American Academy of Dental Medicine.

These men are now deciding requirements and methods of certification. We are

justly proud of this Board. Such men will keep our standards high.

What is the explanation of such rapid growth in only ten years? The goals of the thirteen original members have not been changed. The Academy has filled a void and a need in the dental and medical professions. Men who see patients as biologic entities rather than as mechanical problems have banded together to further their education, and to push back the borders of knowledge. We do not seek more. We have no desire to set ourselves apart from our colleagues. Our goal is to enable a greater service to the patient, and to bring a close cooperation between physician and dentist. This is the whole of our aims and ideals. All else is mere commentary.

This issue of the Journal is symbolic of our growth. Containing excellent scientific papers, our history and our accomplishments with splendid illustrations and format, it is a monumental work. Such a product does not come by chance. It reflects many months and long hours of concentrated effort. I am sure that the Editor's electric light bills have increased greatly. My congratulations to Dr. Yudkoff and to every contributor.

TEN YEARS OF JOURNALISTIC PROGRESS

This issue of the Journal of Dental Medicine commemorates ten years of journalistic effort for the American Academy of Dental Medicine. The size and scope of this journal has increased greatly during these ten years.

It was during an organizational meeting of the American Academy of Dental Medicine in 1945, that Louis R. Burman suggested that the Academy publish a Journal as a means of informing the dental profession of the aims and objectives of this new group. Harry Roth was appointed the first editor of the Journal of Dental Medicine and was soon involved with estimates for printing, plans for size and format and the search for worthwhile publication material. Louis R. Burman served as Managing Editor and Business Manager. After having completed the difficult task of getting the Journal started, Harry Roth found he could no longer devote the time from his busy practice and asked to be relieved as Editor before the first issue appeared. The first President of the Academy, Samuel Charles Miller, then asked Allan N. Arvins to take over the reins.

In July 1948 a new cover seal was designed by J. Lewis Blass replacing the original which was the work of Louis R. Burman. This seal subsequently became the official seal of the American Academy of Dental Medicine.

The early years of publication were trying ones. Articles of merit were difficult to secure since the authors wished their material to appear in journals of wider circulation and popularity. Allan Arvins quickly learned the technical phases of publication work, and with each succeeding issue of the Journal it was enlarged.

In September, 1948 the American College of Dentists gave the Journal of Dental Medicine an *A* rating, placing us among the leaders of dental journalism. We also became affiliated with the American Association of Dental Editors.

As the years passed, the physical appearance of the Journal was improved. With our January 1953 issue the size of the Journal was increased, a new and larger type face was selected, and a new cover design adopted. The number of illustrations was increased and new sections added. This change of size and format placed the Journal of Dental Medicine on a par with the best State and National Dental periodicals.

Having completed seven years as editor, and with the confidence that the Journal was an established dental periodical, Allan Arvins regretfully resigned as Editor. Irving Yudkoff, who served as assistant editor since 1952, was elected to the Editorship in June, 1953.

In September 1953 a special issue of the Journal of Dental Medicine appeared entitled "Nutrition and Oral Conditions". This bibliography and abstracts of the literature from 1939-1951 was prepared by Harry Roth and members of the undergraduate Society for Dental Research at New York University College of Dentistry. This special issue received a great deal of attention among those interested in nutrition in the United States and abroad.

The policy of summarizing all articles in the Journal of Dental Medicine in the new scientific language called Interlingua, was instituted in April 1954. This idea was suggested to the Editor by Samuel Charles Miller, who felt that the use of Interlingua in scientific summaries would help to eliminate the language barriers that exist among our dental colleagues all over the world. Two years have passed since the Interlingua summaries have become part of our Journal and hardly a week goes by in which the Editor does not receive letters expressing interest in Interlingua from dental colleagues throughout the world. The use of these summaries has broadened the field of impact of our journal from a national to an international dental publication.

One of the biggest problems confronting dental editors today is the careful selection of articles. Many editors have had to depend on reprinting articles from other journals. The publication committee has always tried to present original articles in our Journal and thus present to our readers the latest advances and ideas in the field of dental medicine.

A new cover appeared on our January 1956 issue. This design was the combined work of the Staff and Publications Committee of the Journal. The art work was ably done by J. David Kohn.

We are indebted to Harold Mollins of Tabard Press who has assisted us during the past ten years in the improvement of the physical appearance of the Journal. His suggestions as to type face, format changes, the use of additional illustrations, and the many technical points of journal publication have been most helpful. The stenciling and mailing responsibilities are in the capable hands of Mary Jane Crew. The editor is most appreciative of the aid given him by his secretary, Lenora Murphy, who prepares the manuscripts for the printer, answers the voluminous correspondence, and assists in the many details that are requisite to the publication of a dental journal.

As with any smoothly working team, diligent workers often receive little personal recognition. To these colleagues whose names appear on the mast head—our grateful thanks.

We hope that the next decade will see our Academy and its Journal assume greater importance and prominence in the world of Dental Medicine.

ALLAN N. ARVINS
IRVING YUDKOFF

DENTAL SERVICE—AND CARE

Clinical dentistry utilizes the basic sciences as well as the contributions of the various fields of medicine. Some of these are geriatrics, psychology, psychiatry and

nutrition. This total background of dental training, rich in the sciences, technological practice, basic sciences and medical science prepares the dentist to meet the total needs of his patients.

Complete dental service furnishes more than diagnosis and treatment: it renders preventive and maintenance care as well. Formerly, dentists were trained to maintain mouth sanitation and to treat disease and correlate the dental with systemic health in an almost entirely mechanical fashion. The current definition of dental service extends beyond this: it provides physical vitality, reserve resistance, general well-being and satisfaction of essential emotional needs—such as the security engendered by keeping one's own teeth. At present it is obvious that dental care bears a direct relationship to physical and emotional needs of the patient.

Rendering such a service will not imply the possession by the dentist of a specialist's knowledge of psychological, medical or nutritional information. It simply requires a greater awareness of the cyclic interplay of the dental, physical and emotional needs of the patient. The interest in oral medicine, periodontics, and doctor-patient relations and their correlation with other dental studies, is already obvious even though emphasis on technical aspects of the diagnostic procedure and basic patient education are still considered necessary phases of every dentist's practice.

One of the functions of the dentist is to prepare his patient for acceptance of the benefits of necessary initial services of the diagnosis. The attitudes that facilitate serving others include appreciation of them as individuals, listening to them, liking them and understanding them by discovering their basic wants. The practice of these principles exposes the patient's fundamental modus vivendi. Everyone has some prime motivation in his life such as altruism, vanity, economy, love of his children, patriotism, religion, wealth, health, appetite, amusement, security, self-advancement and other motivations that can be uncovered in the interpersonal relationship between doctor and patient.

At the outset, much can be gained by establishing rapport. This requires adaptation to the patient's expressed or underlying wants, empathy with his problems, interest in his accomplishments, in advancing his motivations and praising his strong points. Orientation by the practitioner to the needs of the patient and the demands of his dental care, with full, bilateral understanding of the benefits, responsibilities, shortcomings and rewards of dental care creates an aura of mutual and ready transference. To accomplish this, tolerant listening and bilateral understanding are required.

Authoritarian speech and action by the dentist fortifies the unconscious fears that some patients have. The dentist must sometimes discipline himself to speak in a friendly voice so as to avoid formidability, brusqueness, disinterest or rejection. Talking in terms of benefits of dental care, and avoiding the tenseness that arises out of a patient's critical comments reduces the patient's tenseness and fears. In presenting new ideas it is more acceptable to do so step by step rather than to attempt presentation of the entire procedure at one time. Acceptance of one step at a time prepares the patient for total agreement on complete care when that point in the relationship is reached.

If the patient is greeted with respect and interest, a good start is made. Then, in speaking of the benefits of the services that are planned, the patient's wishes and needs should be kept in mind and satisfied in the overall plan for dental care. Dental health and rehabilitation contribute to the patient's security in his employment, relieve him of the fear of ill health or of infection and the danger of losing his teeth. Dental care provides the basic essentials for the patient's physical, emotional and spiritual welfare.

As suggested earlier, the patient's thoughts are more important than his expressed

views. The patient who is fearful, or suspicious and goes to the dentist for emergency care only is difficult to integrate into a practice. Fear, prejudice and discouragement can frequently be replaced by positive thoughts about the possibilities of dental care if the dentist patiently explains his services. A patient with common sense and mature judgment will be willing to act in concert with the dentist he has chosen, when the dentist presents a clear conception of what he wishes to accomplish by his treatment plan. Frequently, the recalcitrant patient is one who previously has been treated with rigidity, disrespect, disregard of his time, or with excessive aggression or unwanted sympathy. Treating him with respect and in keeping with his changing needs may be the key to the development of a good dental patient.

J. LEWIS BLASS

AN INVITATION

The Michigan Section of the American Academy of Dental Medicine sends greetings to all members of all Sections. With this greeting comes a cordial invitation to attend the Tenth Annual Convention to be held in Dynamic Detroit, June 21-24, 1956 at the Sheraton Cadillac Hotel.

The theme of our Convention is "Oral and Physical Manifestations of Systemic Disease." This broad topic will be divided into specialized chapters, namely: Nutritional, Endocrine, Circulatory, Allergic, Dermatologic, Radiologic, and Laboratory Tests in Oral Diagnosis. Each subject will be essayed by an outstanding specialist in that field. The complete program, professional and social, appears on the two page center spread of this issue.

In addition to this sparkling program, lavishly embellished by social intervals, we invite you to explore our beautiful state while Mother Nature is putting on her peak performance. Michigan is wondrously beautiful in June.

A separate program of activities has been designed especially for the families of attendees. Bring your brides and your children. They will be enthusiastically entertained.

A warm welcome awaits you at your Tenth Annual Convention.

E. G. FREIMUTH, *Publicity Chairman.*

STRESS AND THE GENERAL ADAPTATION SYNDROME*

Herbert S. Kupperman, Ph.D., M.D.†

The relationship between stress and the general adaptation syndrome to problems in medicine and dentistry has become increasingly apparent since the original concept was presented by Selye. Hans Selye formalized our knowledge on the subject and laid down some specific points and basic fundamentals. In elaborating upon stress and the general adaptation syndrome, I have used the license of the investigator and clinician and the predatoriness of both when feasible. To that end little or none of the basic thoughts are my own and much has been taken from Selye[1-3] and his coworkers and from the concise and readable description recently presented by Jerome Conn.[4]

GENESIS OF THE ALARM REACTION

The birth of the concept of the alarm reaction or the response of the organism to stress perhaps should be ascribed to the "emergency reaction" of Cannon.[3] Cannon emphasized the rule of epinephrine and demonstrated its increased secretion from the adrenal glands of animals subjected to a fright-stimulating situation. His observation on the discharge of epinephrine in stress formed the basis of the theory that the adrenal medulla played an important role in the defense mechanism of the body to noxious or emotional stimuli. Thus the "shifting" of the blood from the abdominal area to the central nervous system by the selective vaso-pressor action of epinephrine permits acceleration of recovery from neuromuscular fatigue. This represents a useful defensive function of epinephrine during emergencies. Selye, however, is responsible for establishing the relationship between the hormones of the adrenal cortex and the response of the organism to stress and the diseases of adaptation. The concept of this relationship had its insidious onset while Selye was conducting some studies on the effect of certain ovarian extracts upon the body in general. He was interested in characterizing the effect of these ovarian extracts with respect to other than primary gonadal effects. He noted that administration of these crude preparations resulted in a number of wide-spread changes which were distinguished primarily by notable adrenal enlargement, involution of the thymus and atrophy of the lymph glands. Suspecting that he might have a new and specific adrenal stimulating factor of ovarian origin responsible for these changes, Selye attempted purification of the ovarian material to properly identify the active principal which he thought might have important therapeutic implications. However, to his dismay, he noted a greater decrease in effectiveness of the extract, the purer it became. The logical assumption then was that the extract, in all probability induced its effects upon the adrenal and other glands primarily due to non-specific properties based upon response of the organism to a toxic substance. With this as premise, Selye then prepared extracts of muscle and other tissue in a manner comparable to that used in preparation of the ovarian extracts. The end result of administration of these preparations was comparable. It was thus established that the adrenal changes previously noted after administration of the crude ovarian extracts apparently were due in part in a non-specific "toxic effect" and could be characterized as an untoward reaction to the medication. Selye was able to produce the identical changes by the use of certain noxious chemical agents, in particular, formaldehyde. These agents invariably induced adrenal hyperplasia and hypertrophy.

ALARM REACTION AND THE GENERAL ADAPTATION SYNDROME

Having established these observations as being reproducible, it became important to understand the underlying mechanism and the physio-

* Presented before the Ninth Annual Meeting of the American Academy of Dental Medicine, May 13, 1955, New York, N. Y.

† Department of Therapeutics, New York University-Bellevue Medical Center, New York, N. Y.

pathology behind the chain of events that had been induced. The important role of the adrenal in supporting the animal subjected to noxious stimuli was soon established by the following experiments. Administration of injurious substances to rats in doses inducing severe but nonlethal reaction would invariably be lethal in animals in whom the adrenals had been removed. Adrenalectomy prevented the sequence of events usually noted during stress and the general adaptation syndrome which will be described below. From these experiments, Selye, concluded that noxious materials induced an *alarm reaction* that required the integrity of the adrenal glands to maintain the organism in a state of equilibrium. Accordingly, Selye defined the alarm reaction as the sum of all nonspecific systemic phenomena elicited by sudden exposure to stimuli to which the organism is quantitatively or qualitatively not adapted.

The alarm reaction may be divided into two phases, the phase of shock and the phase of counter-shock.

The phase of shock is characterized by:

1. hypothermia
2. hypotension
3. depression of the central nervous system
4. decrease in muscular tone
5. hemoconcentration
6. hypochloremia
7. hyperkalemia
8. transitory rise then fall in blood sugar
9. leucopenia changing to leucocytosis
10. hyperphosphatemia
11. decreased diuresis

The phase of counter-shock can be considered as the induction of phenomena to nullify the changes observed during shock phase and is evident by:

1. Rise in blood pressure
2. hemodilution
3. hyperchloremia
4. hyperglycemia
5. Rise in blood volume
6. increased diuresis
7. lymphopenia
8. eosinopenia

The counter-shock phase is obviously due in major part to the effects of increased adrenal cortical activity while the shock phase is akin to a hypoadrenal state. Certain pathologic changes are noted during one or both phases of the alarm reaction. The most prominent, of course, are the changes in the adrenal cortex which are characterized by enlargement of the adrenal cortex associated with discharge of lipid material from the cells. There is also a rapid decrease of both the cholesterol and ascorbic acid content of the adrenal cortex—both being indicative of increased ACTH stimulation. The adrenal medulla also shows changes as evidenced by immediate discharge of chromaffin granules within a few minutes after exposure to the alarming stimulus. This probably accounts for the release of epinephrine-like substance which in turn acts primarily upon the hypothalamus and pituitary to induce ACTH secretion. The increased adrenal cortical activity which results will cause thymus evolution as well as atrophy and involution of the lymph nodes and spleen. The pancreas likewise undergoes involution during the alarm reaction. Gonadal and thyroid involution and/or atrophy may be noted. Gastro-intestinal ulcers may be noted during the counter-shock phase and may be associated with massive hemorrhage. The clinical counterpart of these abnormalities have been noted during the administration of exogenous cortisone or ACTH. Cortisone directly, or ACTH indirectly can induce the above changes when administered to man or animals in adequate dosage.

The above phases of the alarm reaction must be considered as the first part of the general adaptation syndrom which is made up of two subsequent phases. The next one being the stage of resistance and is characterized by an increased resistance of the organism to the particular stress or agent to which the body has been exposed and a decreased resistance to other stimuli. The third stage of the general adaptation syndrome is the stage of exhaustion. Thus if exposure to abnormal stress continues the

adaptation potential is diminished and eventually lost. If this stage occurs many of the pathologic observations of the counter-shock phase of the alarm reaction reappear—such as involution of the thymico-lymphatic system, loss of adrenal lipids, etc. Further resistance during the stage of exhaustion is impossible and this phase usually results in death of the animal. The stage of exhaustion is comparable to that noted in marked or acute hypoadrenal corticoidism or adrenal failure. Such a state may be noted clinically in the Waterhouse — Friderichsen syndrome where death results as a consequence of a fulminating infection usually accompanying meningitis. This is usually associated with acute adrenal failure and hemorrhage.

ADRENAL CORTICAL FACTORS AND THE GENERAL ADAPTATION SYNDROME

The three stages and sub-phases outlined above compose the adaptation syndrome which may be defined as the sum of all the non-specific systemic reactions of the body which occurs after long-continued exposure to stress. The remaining part of our discussion will be concerned primarily with adrenal cortical factors in the general adaptation syndrome and their specific effect in the counter-shock phase. The significance of the adrenal gland in the counter-shock phase is supported by the fact that exogenous adrenal cortical hormones could induce the same blood changes observed during the counter-shock phase. In addition the adrenal cortical hormones or extracts can enable the adrenalectomized animal to survive the alarm reaction after exposure to a noxious stimuli or chemical that would be tolerated by the normal animal but be lethal to untreated adrenalectomized rats. The response of the adrenal gland, however, in the counter-shock phase is not a spontaneous one but is dependent upon extra-adrenal factors for its activation. The factors controlling increased adrenal activities were soon established by noting that adrenal hyperplasia, enlargement or stimulation would not occur in the absence of the pituitary gland. An intact pituitary gland is essential to promote adequate adrenal response in the alarm reaction. The adrenal gland is dependent, primarily, upon the pituitary adrenal corticotrophic hormone (ACTH) secretion for direction, stimulation, and growth. An intact pituitary-adrenal axis is necessary for the organism to be able to shift into the counter shock phase to adequately combat the shock phase by elaboration of the corticoids from the adrenal cortex. The pituitary-adrenal axis is the primary line of defense and the trigger mechanism responsible for preparing the body to sustain the shock phase of the alarm reaction.

HYPOTHALAMUS

After establishing the need for ACTH stimulation to induce endogenous hyperadrenal corticoidism the question was raised as to what actually stimulates the pituitary gland so that an increased release of ACTH secretion occurs. While the pituitary gland is the master of the endocrine system, what controls pituitary function? It has been suggested that the hypothalamus is the regulator, controlling pituitary secretion. Under proper stimuli, a humoral, not neural, substance is released from the hypothalamus resulting in pituitary stimulation. The stimulus for the release of the humoral substance from the hypothalamus in all probability is epinephrine from the adrenal medulla. It is generally agreed that epinephrine is readily and promptly released from the adrenal medulla under stress. This sympathicomimetic substance is carried by the blood stream in adequate levels to induce the release of the humoral material from the hypothalamus which in turn induces ACTH elaboration from the anterior hypophysis.

ACTH-ADRENAL CORTICAL INTERRELATIONSHIPS

In addition to the adrenal medulla-hypothalamus-pituitary ACTH-adrenal cortical axis there is another probable mechanism responsible for causing an increased release of ACTH secretion during the alarm reaction. This latter mechanism involves a standard principle in endocrinology and is based upon the concept that the hormone secreted by the endocrine gland dependent upon a pituitary trophic hormone for its sustenance will in turn inhibit the secretion of the pituitary trophic hormone

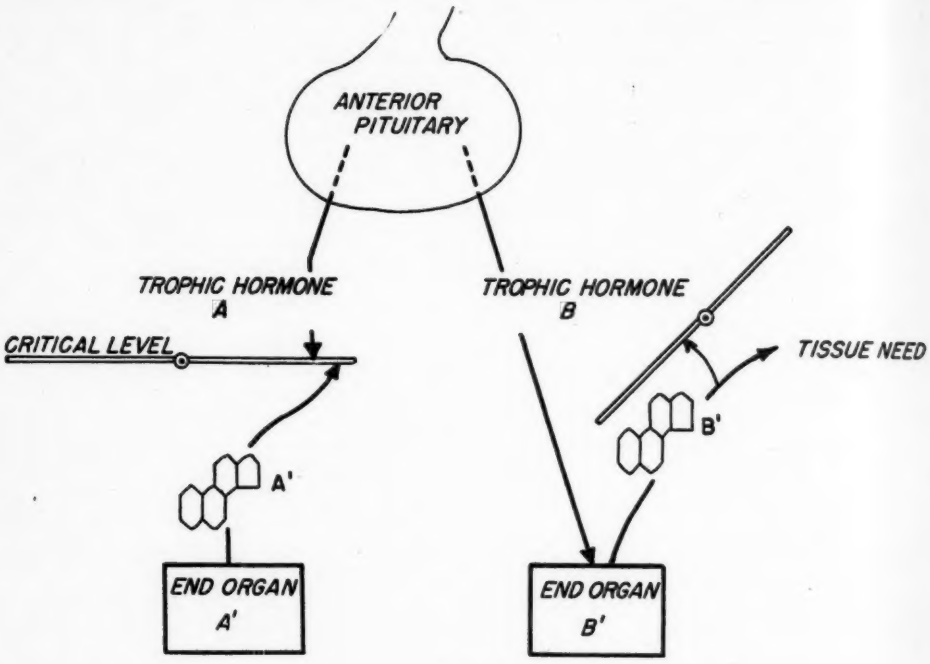

Figure 1

Steroid hormone control of pituitary trophic hormone secretion.

from which it attains its support. Thus while the pituitary may be considered as the dictator of the endocrine system, it in turn is controlled by its dependents in much the same manner that a dictator while presumably all powerful is responsible to one group or another. The stimulation—inhibitory relationship existing between the pituitary gland and its endocrine end organs is held in delicate balance. Presumably when the blood level of the steroid hormone from the endocrine end organ falls below a critical level, there is a stimulus for the release of activating pituitary trophic hormone. When the steroid hormone level is increased above the critical level it inhibits the release or secretion of additional pituitary trophic substances. This interrelationship between the glands of internal secretion is explained in Figure 1. The level of steroid hormone A^1 from end-organ A^1 is at the homeostatic critical level. This is adequate to prevent secretion of the pituitary trophic hormone A which stimulates end-organ A^1. On the other hand the steroid hormone from end-organ B^1 is being utilized due to necessary tissue requirements. Hence the critical level of this steroid is diminished and is not achieved. This permits the pituitary trophic hormone B to continue to stimulate end-organ B^1. When the blood level of steroid hormone B^1 reaches the proper physiologic level then it "closes" the critical line platform and further secretion of trophic hormone B is prevented. Applying this principle to the alarm reaction one can see that during the period of stress there may be a tendency for the particular stressed area or body in general to react by "sponging up" very avidly much of the available corticoids circulating in the blood stream. Utilization of the corticoid by the shocked end-organ would result in significantly lowered blood levels of the corticoid. Using the same scheme as in Figure 1, the effect of

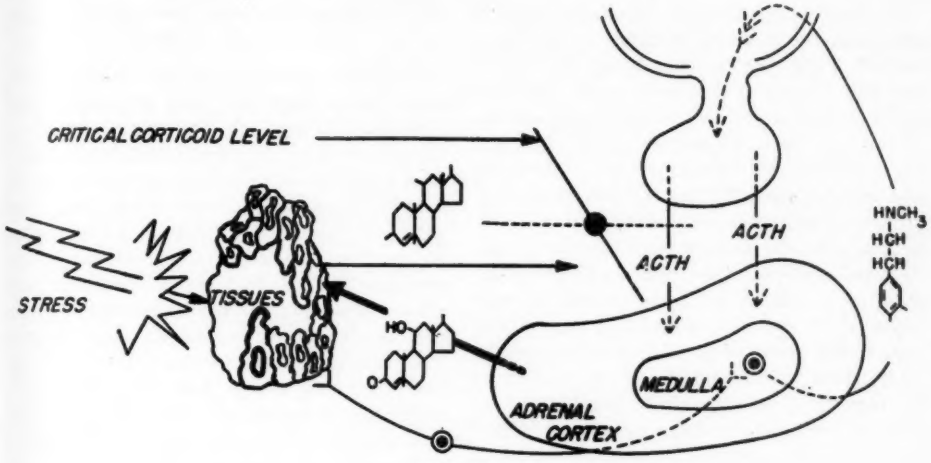

Figure 2
The effect of stress upon Pituitary—Adrenal cortical activity.

stress is depicted in Figure 2 as a sponge which "absorbs" the available blood hydrocortisone. This, in turn, diminishes the critical blood cortisone level. The lowered blood corticoid level permits the "trap door" to open and allow the ACTH secreted from the pituitary gland to stimulate the adrenal cortex to produce more hydrocortisone. This is an attempt by the body to maintain the homeostatic critical corticoid hormone level. (Figs. 1 and 2) When the need of peripheral tissue is diminished an adequate corticoid blood level is achieved and permits closure of the "trap door" so that further ACTH stimulation of the adrenal cortex to produce excessive blood corticoid levels is prevented. The lowered blood level, thereby, provides an adequate stimulus for the release of increased ACTH secretion so that physiologic corticoid levels could be maintained. The role of the corticoid blood level in controlling ACTH secretion is diagramatically presented in Figure 3. In the normal homeostatic state the critical blood cortisone level is maintained and there is no need for ACTH secretion. Valves 1 and 2 remain closed. When there is a need for cortisone as in a stress situation valve 2 is opened. This results in a rapid depletion of the corticoid hormone from the system resulting in a lowered blood corticoid level. Consequently, the float controlling valve 2 falls and opens the valve thus permitting ACTH to enter the system. The critical corticoid level is then reestablished to the extent that the ACTH-valve is closed, and further cortisone production is thereby limited. Valve 2 will remain closed until the need for the corticoid steroid is present as manifested by opening of valve 1. At this time, ACTH will enter the system once more and restore the depleted corticoid level. (Figs. 1 and 2)

The evidence to support the concept that stress is associated with increased elaboration of adrenal steroids, particularly of the F-like compounds, from the adrenal cortex is based upon the following observation.

1. There is an increased concentration of F-like substances in the adrenal vein during the stress syndrome. Catheterizing the adrenal vein of animals has demonstrated that there is an increased secretion of adrenal corticoids into the vein during the induction of stress.

2. Increased blood levels of hydrocortisone-like substances have been demonstrated during stress.

3. Increased excretion of hydrocortisone is noted in the urine of animals and patients subjected to varying degrees of stress.

The elaboration of these substances tends to counteract the undesirable effects of the stress reaction itself. Before considering the benefit that may actually be achieved by the corticoids we will complicate the picture somewhat by discussing a new pituitary-hormone axis, i.e., the somatotrophic-aldosterone axis, which is also involved in the stress and adaptation syndromes. These substances permit us to establish a more complete and composite picture during the stress and post-stress phases. The stimulus of stress, inducing a release of ACTH with consequent elaboration of adrenal cortical factors, would presumably be void of any of the toxic effects usually noted and manifested by the abnormal connective tissue response, hypertension, periateritis nodosa, rheumatoid arthritis, etc. Thus since the corticoids are useful in the therapy of such disease entities it would be difficult to see how these clinical abnormalities could be considered as diseases of stress. However, it has been suggested that the stress stimulus also induces an elaboration of the growth or somatotrophic hormone (STH) from the pituitary gland which in turn stimulates the secretion of a water and electrolyte controlling hormone from the adrenal cortex, now characterized as aldosterone.

PROPHLOGISTIC AND ANTIPHLOGISTIC HORMONES IN STRESS

Inasmuch as most of Selye's studies on the stress phenomenon were done with desoxycorticosterone, it was felt that his experimental designs could be considered merely as an artificial situation. Since desoxycorticosterone is not a naturally secreted hormone from the adrenal cortex, it was suggested that it probably plays no part in the endogenous response of the organism to stress. However, electrocortin, now known as aldosterone has been extracted from adrenal cortical tissue and has been isolated from blood from the adrenal veins. This substance has been shown to be most potent mineralocorticoid known today.[6-7] These findings then lend credence to the fact that the adrenals are capable of secreting a highly potent and active endogenous minerlo-corticoid. Aldosterone or desoxycorticosterone-like hormones, either singly or in combination, have the potentiality of inducing the adverse changes noted above and which are usually anticipated in diseases of stress. Since the lesions of nephrosclerosis, periarteritis nodosa and hypertension were induced much more readily by the combination of the electrolyte-metabolism hormone

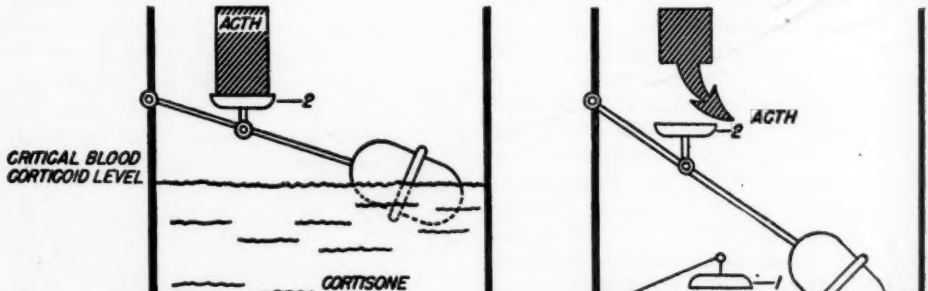

Figure 3

The influence of blood corticoid level upon Pituitary ACTH release or secretion

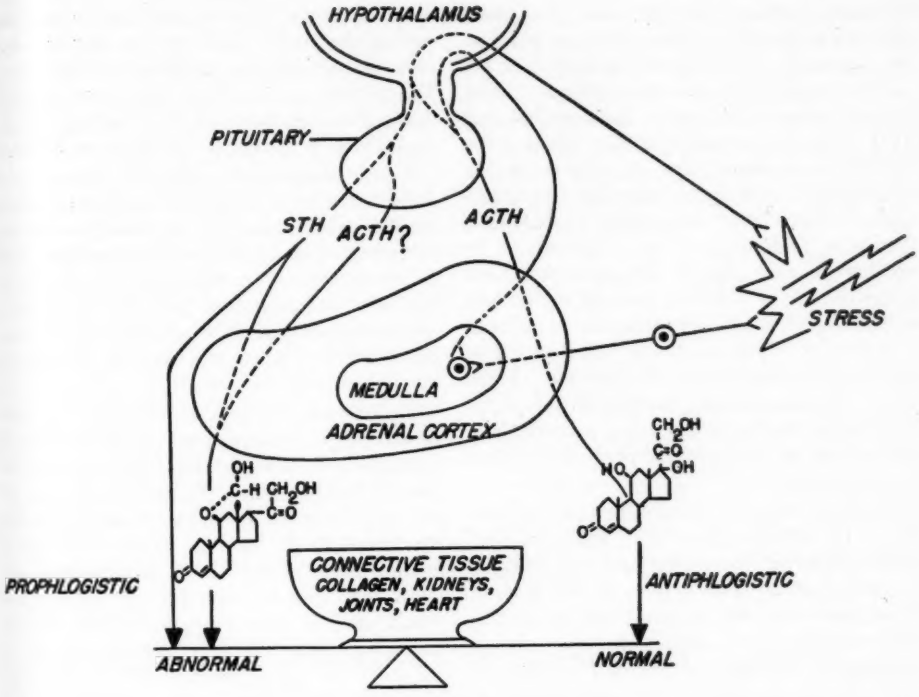

Figure 4

Inter-relationship between the Prophlogistic and Antiphlogistic hormones in the response of the body to stress.

or mineralocorticoid with the somatotrophic hormone (STH), than with the electrolyte hormone itself it was suggested that STH sensitizes the tissue to the action of the latter. All of the mineralocorticoid effects produced by exogenous desoxycorticosterone acetate can be reduplicated by stress and STH administration providing the animal's adrenals are intact. The inflammatory effect, connective tissue response and nephrosclerosis cannot be induced by stress, cold, or STH in an adrenalectomized animal indicating that the pathology observed in these conditions is due in part to an increase in endogenous mineralocorticoid secretion from the adrenal cortex. Selye is of the opinion that the mineral corticoids induce inflammatory changes which are particularly marked in an animal sensitized by STH. As a result, he identified the mineralocorticoids — presumably aldosterone, as the phlogistic or prophlogistic hormones in contrast to the antiphlogistic activity of the corticoids. The STH—aldosterone and ACTH—corticoid axes are mutually antagonistic one against the other. Hence, one can see that in the absence of the glucocorticoids, the aldosterone—STH system would be uninhibited and permitted to produce the abnormal pathologic changes noted above. Stimulation of the ACTH—glucocorticoid axis in turn helps to defray or diminish some of the phlogistic and pathologic changes induced by the STH-mineralocorticoid system. The interrelationship between the prophlogistic hormones and anti-phlogistic hormones in stress are presented in Figure 4. Here we note as a result of the stress, there is a stimulus to the hypo-

thalamus, probably directly from the stress area and indirectly by release of an epinephrine-like substance which follows stimulation of the adrenal medulla by the stress stimuli. These stimuli induce a release of both ACTH and STH from the anterior pituitary gland. The ACTH is responsible for stimulation of the secretion of antiphlogistic corticoids (hydrocortisone) on one hand, and possibly prophlogistic corticoids (aldosterone) upon the other. In addition it must also be suggested that STH either directly or indirectly through the adrenal cortex enhances the prophlogistic corticoids. The reactive organs or tissues are depicted as being in a container on the fulcrum. These tissues or organs may be precipitated toward the abnormal or normal side pending upon the relative activity or predominance of the two classes of compounds.

The compensatory antagonism that exists between the anti-phlogistic and phlogistic hormones, however, is not universal and does not become operative with respect to the kidneys. Thus, experimentally, it has been shown that desoxycorticosterone overdosage will induce periarterites nodosa, inflammatory changes in the connective tissue of the joints, nephrosclerosis and renal hypertension. The glucocorticoids will diminish the periarteritis and inflammatory changes but will accentuate the renal pathology to such a degree that death will result. Clinically this observation has been substantiated in that fatal renal complications may be induced in some patients with collagen disease by administration of glucocorticoids despite the fact that the inflammatory, connective tissue changes and abnormalities of collagen tissue had been corrected.

PHYSIOLOGIC EFFECT OF GLUCOCORTICOIDS

Inasmuch as the glucocorticoids are antiphlogistic in action and in general promote the counter shock and resistance phase of the general adaptation syndrome it would be of interest to elaborate upon the physiologic effects of the glucocorticoids. The great variability and multiplicity of actions of the glucocorticoids are legion and complex. Knowledge of their activity has been gained by noting the effect of these corticoids in the normal human and observing the clinical pathology in disease states associated with their endogenous hypersecretion. The prominent effects of the glucocorticoids that are of importance in counteracting the adverse effects of the alarm reaction are as follows:

1. *Protein catabolic*—On the surface it is difficult to see how protein catabolism would be effective in diminishing the reaction to stress. However, if one considers the fact that with the breakdown of protein an increase in elaboration of amino acids is achieved, it becomes apparent then that these amino acids in turn are available for use and may be utilized by the injured area for repair.

2. *Gluconeogensis* — In addition to the breakdown of protein, new glucose is formed by complex metabolism processes from the catabolized protein—hence the term gluconeogenesis. The increased amount of blood glucose so obtained may be used as a source of quick energy which perhaps is necessary during the stress period. In addition gluconeogenesis would make it unnecessary to enhance glucose production from the depot glycogen areas in the body by glycogenolysis—particularly liver glycogen. This would then have a sparing effect upon the utilization of liver glycogen. The glucocorticoids also in their own right facilitate deposition of liver glycogen. Since the liver is an important and integral organ in the metabolism of endogenous toxins, its normal function is imperative. Inasmuch as the presence of liver glycogen is mandatory for adequate liver function, then the longer the liver glycogen is maintained and spared, the more capable will the liver be of functioning in a normal capacity and aid in necessary detoxification.

3. *Electrolyte and water metabolism* — The glucocorticoids in adequate doses may induce salt and water retention. This factor may be important in maintaining blood volume. A loss of sodium and chloride would make it impossible for the organism to maintain extra cellular fluid volume. The tendency for the stressed patient to conserve salt and water is aptly demonstrated in the post-operative patient, i.e.,

stressed patient, who shows a profound avidity for salt and water.

In light of our present knowledge perhaps, the above discourse and presented diagramatic schemes are an over simplification of stress and the general adaptation syndrome. For example there are at the present antiphlogistic hormones that are not glucocorticoids in action. Thus 9-A-fluorohydrocortisone, a potent mineralocorticoid, possesses little or no glucocorticoid activity in the doses employed. Yet it is an active antiphylogistic agent. Another point of contention is that not all the physiologic effects noted after the administration of ACTH are duplicated by stress stimuli. Conversely—the stress stimuli may induce effects other than those noted after—ACTH administration. There are many who disagree with the above explanation of the stress syndrome.[8] However, the entire concept permits some understanding of the complex disease entities that may effect the tissue and organ system of the entire body. Diseases of stress and the general adaptation syndrome may have a far reaching effect upon the development of certain physio-pathologic states frequently confronted by both the dentist and physician. Hence, basic knowledge of the underlying physio-pathologic states, is of importance to the dentist in certain disease entities which etiologically may be related to a primary stress syndrome.

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STRESS E LE SYNDROME DE ADAPTATION GENERAL

Dr. phil e med. Herbert S. Kupperman

SUMMARIO IN INTERLINGUA

Es discutite le factores adrenocortical e pituitari que es involvite in le syndrome del stress. Le syndrome de stress e adaptation representa un serie de evenimentos que seque le exposition del individuo human o animal a stimulos de character inimic. Como resultato de iste stimulos, certe mechanismos reparative e supportative es actuate intra le corpore, primarimente per le mediation de augmentate activitates adrenocortical. Quando le corpore es exponite a stresses del typo mentionate, le cortice adrenal responde a stimulation ab le glandula pituitari que de su parte ha essite stimulate per le hypothalamo, un area cerebral immediatemente supra le glandula pituitari. Le effecto es que le cortice adrenal produce un plus grande quantitate del substantias hormonic del typo que ha essite appellate corticoide. Iste substantias corticoide es identic o simile a illos usate in medicina clinic pro combatter certe manifestationes morbose de natura normalmente letal. Le augmento del secretion adrenocortical es frequentemente le factor que salva le vita del patiente proque illo permitte al organismo supportar le conditiones inusual de stress al quales illo es exponite. Es discutite le relation del glandula pituitari e del altere glandulas endocrin con le syndrome del stress.

Es detaliate le application del supra-presentate observationes a problemas medical e dental. Le historia del syndrome de stress es describite in detalio super le base del conceptos de Selye. Certe diagrammas del mechanismo del syndrome de stress e adaptation es describite in detalio pro explicar le relation inter le activitates intracorporee del glandulas pituitari e adrenal.

THE ROLE OF STRESS IN DERMATOLOGIC DISORDERS OF THE MOUTH*

VICTOR H. WITTEN, M.D.†

At the time that I was asked by the chairman of your program committee to speak on the subject of stress and dermatologic disorders of the oral mucous membranes, I could think of but one condition of the mouth that I was absolutely sure was due to stress. That condition is the dryness that causes the tongue to stick to the palate, makes swallowing difficult, and rapidly becomes so troublesome that the speaker (and here I refer to myself) has difficulty in getting the words out of his mouth.

I tried to make clear to your chairman the fact that I would not be able to associate many dermatologic disorders of the mouth with the concept of the stress syndrome, the subject of this scientific session. He assured me, however, that explanations of lack of knowledge, speculations, and even a contrary or negative point of view would be acceptable.

As the result of this assurance I have the pleasure of addressing you today.

It is fortunate, indeed, that I was preceded by Dr. Kupperman whose excellent presentation has opened the door of the inner sanctum so that all of us could view the General Adaptation Syndrome and perceive it with clarity and understanding. I now look forward to Dr. Hinkle's presentation of the Physiologic Aspects of Stress as I anticipate he may well mention the mechanism which can produce a "dry cavity" in the head of some speakers.

More complicated than Cannon's "emergency theory" based on "physiologic stress" is Selye's General Adaptation Syndrome (G-A-S) which is premised on a complicated and as yet unfathomed endocrinologic mechanism involving a complex of hormones and hormone derivatives. Once having been set in motion this mechanism acts to eventually affect a "target" which may be the whole body or some part of it. The details regarding the G-A-S, about which more is being learned every day, are beyond the scope of this paper and the reader is referred to Dr. Kupperman's presentation and the excellent and comprehensive articles by Selye.[1, 2, 3]

The very fact that the G-A-S is based on response to non-specific stimuli (which include such widely different factors as cold, heat, infection, intoxication, muscular fatigue, nervous strain, x-radiation, etc.) precludes the possibility of my saying that a particular disease of the mucous membranes, for which the etiology is unknown, is the result solely of stress. If it were possible to accurately define the particular stress and follow through the exact physiologic, pharmacologic and pathologic changes which take place, I might be able to point out cause and effect, thus indicating the positive role of stress in dermatologic disorders of the mouth.

Certainly everyone of us, everyday of our lives, are exposed to varying degrees of stress, but just as an infectious disease is the result, not of the micro-organisms alone, but of a complex of local and systemic factors, so our reactions to a particular stress depend not solely on the stress, but on associated local and systemic changes. There are many variable factors which may influence an individual's response to stress. These include, age, heredity and predisposition, nutritional state, and previous exposure to stress, to mention but a few.

If a stimulus to the body is to complete its path, the G-A-S, without producing disease, it should be evident that all the variable factors must be correctly inter-related, that is, all the circuits must be in proper connection one to the other and functioning in orderly fashion. As Selye is careful to explain, diseases of adapta-

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tion are those maladies in which the failure of the adaptation syndrome plays a more important role than the eliciting pathogen or stress.

Of course, even under the most ideal circumstances, when the body is in excellent physical condition and all circuits are properly connected and functioning in good order, an excessive stimulus can overload the circuits to the point of exceeding their tolerance, thus causing a breakdown of the adaptive mechanism, and disease. In addition, disease may result following stress when all of the circuits are in proper repair with the exception of the "target" organ, which is incapable of handling the load imposed upon it by the mechanics of the G-A-S.

While many diseases are attributed to stress factors, to the best of my knowledge, there have been no studies to date, either in laboratory animals or man, which have shown that many of these common lesions of the mucous membranes can be produced by the administration, deprivation or disproportion of the corticoids or somatotrophic hormone in the presence of stressors. I refer to such lesions as lichen planus, leukoplakia, aphthous ulcers, geographic tongue, hairy tongue and vesicles or bullae.

Though I believe there is insufficient evidence to consider non-specific stress situations as causative of the oral manifestations of lichen planus, pemphigus, lupus erythematosus, and erythroplasia of Queyrat, it does occur to me that a faulty connection in the body's adaptation circuit or some defect or weakness of the "target" area or end organ may affect the local susceptibility of the oral mucosa in such a way that various signs and symptoms may follow the action of a stressor agent. Such a stressor agent may act locally upon the mouth or exert its effects from a distance and systemically.

It is furthermore beyond doubt that a stress acting by way of the G-A-S may alter the proportion between the more mucous and more liquid salivary secretions, cause regurgitation, or change eating habits, thus perhaps influencing the optimum pH of the mouth; or it may cause the mouth to become too dry or too moist, thus upsetting the existing ecology of the flora and permitting overgrowth of pathogenic organisms; or it may cause changes in the cellular structure of the mucosal lining as has been shown to occur cyclicly in women and will be discussed later. All of these changes, as well as others, undoubtedly produce local tissue alterations which result in the mucosa responding to trauma in an other than normal fashion.

LOCAL STRESS

I am certain that in your daily practice you encounter numerous instances of local trauma to the oral tissues with consequential changes. You undoubtedly also have observed how differently different mouths have reacted to what was apparently the same kind and degree of local trauma. When there occurs the right combination of stress and local trauma, local lesions can result. To the contrary, the same local trauma without a G-A-S may not result in changes. This may serve to explain why such local trauma as, for example, the following may either cause little or no harm or may result in various lesions of the oral mucosa; dentures and braces, rough and irregular fillings, decaying or otherwise faulty teeth, thumb sucking, injury from brushing or the use of toothpicks, lip biting, smoking (here both the irritation from the smoke and its compounds as well as that from the direct trauma of the cigarette, cigar or pipe must be considered), mouth washes, troches, food particles and confections, galvanism and so on.

The objective findings following such local stresses would be erythema, edema, maceration, erosions, ulcers, leukoplakia and even vesicles and bullae. Subjectively the complaints vary considerably and include soreness, tenderness, burning, stinging, pain and bad taste.

SYSTEMIC STRESS

As Selye points out, there are many factors capable of placing the body in a state of general or systemic stress. I shall mention but a few: fatigue, chilling, overheating, nervous upset, shock, fear, anger, disease, and so on. During our daily encounter with such stimuli it is only if the circuits are not connected correctly and completely or are in other ways faulty that such factors would do more than produce a subminimal response when the body reacts with a

G-A-S. But let us assume that the body does respond with a G-A-S and that there is a loose or faulty connection in the circuit somewhere in the mouth. Under such circumstances a local susceptibility of the oral mucosa would be anticipated and one would expect oral manifestations of disease. Local susceptibility may be influenced by any sufficiently abnormal condition of the mouth, whether it be poor oral hygiene, excessive smoking, local injury, the presence of unrestrained micro-organisms, etc. All this is speculative, however, and while it may be subscribed to by the proponents of the alarm reaction and the G-A-S, proof is still wanting.

I have already mentioned how various stressing situations can increase or decrease salivation. Somehow, we are prone to accept this cause and effect reaction, perhaps because we are more familiar with the physiology, pharmacology and pathology involved. I know that I am!

CANCEROPHOBIA

But what about glossopyrosis? Which, if any, of these mechanisms is involved in producing the complaint of burning of the tongue? I, of course, refer to the condition where careful clinical examinations and exhaustive laboratory studies fail to demonstrate any variations from the normal and which is so commonly attributed to a cancerophobia. As Dr. Sulzberger has often pointed out to me in private practice, if one goes carefully into the history it is not unusual to uncover the fact that the symptoms of glossodynia or glossopyrosis began shortly after the patient learned that the death of a friend or relative was the result of cancer of the tongue. Just as interesting as such trigger mechanisms leading to the occurrence of this disorder is the fact that the complaint continues for prolonged periods, without the reason being known to the patient, and that it sometimes disappears as rapidly as it began. In some early cases once the trigger incident has been discovered by the physician and it is explained to the patient that the "cancer incident" might well account for the trouble, particularly in view of the absence of any signs indicative of cancer, the symptoms may promptly fade away.

CAUSE AND EFFECT

But how often have you heard the story that a burning tongue, or a bullous eruption of the buccal mucosa, or aphthous ulcers of the gingiva, for example, definitely follower some psychic trauma. Many times, I am sure, because it is not unusual for patients today to relate many bodily symptoms, as well as signs, to psychic and emotional experiences which stand out in their memories—as a death in the family, an unhappy love affair, an automobile accident, a difficult examination, etc. The series of events associated with the disease, as told by the patient, is often so convincing that the physician is inclined to accept the disturbing mental experience as the cause, and the presenting complaint or complaints as the result.

In circumstances such as these, it behooves us to respect and heed the philosophy of Epicharmus to "Be sober and distrustful for they are the sinews of understanding." But in order to be sober and distrustful it is necessary to be familiar with other mechansms which may be etiologic factors for the presenting complaint. All of us who are concerned with diseases of the oral mucous membranes are well aware of these other causes, but under the pressures of a busy day we may overlook or simply not take the time to question the patient wisely or adequately. Perhaps relating the cause and effect is not as obvious as it seems, and if we were to take a careful history we might find that the sore tongue, sore gums or tender mouth about which the patient complains is not the result of the tensions of "just having gone through a week of tough final examinations at school" or that "unhappy love affair," or some other very trying situation. Instead, we might find out that our patient drank cup after cup of hot coffee to stay awake, smoked pack after pack of cigarettes in order to concentrate, chewed on hard candy to keep from smoking even more cigarettes and neglected the usual care of the mouth. Certainly, such *local* irritation to a mouth is alone enough to cause damage and complaints of soreness in the majority of individuals.

To be more specific, there is the case of a successful business executive whose mouth

would always become sore and tender when he had difficult or weighty decisions to make. It seemed quite logical to this man that the sore mouth was the result of the nervous tension he would undergo at such times. He was a moderate smoker and would eat 3 to 4 medicated candies a day. Under stress, however, he would have these medicated candies in his mouth continuously. There was no increase in his smoking at these times. When it was called to his attention that the candies might have something to do with his mouth trouble, he tried keeping some in his mouth continuously on several occasions not connected with particular tension or stress. In this way he soon found out that the medicated candies were the cause of the sore and tender mouth. When simple non-medicated candies were used instead, he no longer had the same trouble. I am sure that careful questioning will unearth many similar occurrences.

ALLERGIC CONTACT SENSITIVITY

Also to be considered in addition to mental distress when searching for the cause of a presenting complaint is the possibility of allergic contact sensitivity resulting from topically applied medicaments. I remember hearing of a woman who began to have hives and angioneurotic edema, including involvement of the membranes of the mouth and throat, shortly after going through very trying divorce proceedings. The condition was so troublesome that she was advised to get away from her old environment and to travel. In order to make her trip a pleasant one, she was accompanied by a female companion, an old friend with whom she had taken residence immediately after being separated from her husband. Changes of environment failed to bring relief—wherever she went she continued to be plagued by the urticaria and angioneurotic edema. During a New York visit, she called Dr. Marion B. Sulzberger, and insisted that he come to her hotel immediately as she was having a particularly severe attack of giant hives. If I may make a long story short, Dr. Sulzberger had previously eliminated from her daily use those topical and oral medicaments, cosmetics and clothing which were suspect. At the time of his visit to the hotel room, however, he noted a jar of sulfonamide ointment on the bathroom shelf. On questioning he found out that it was being used by the patient's companion in the treatment of her psoriasis. When the companion discontinued the use of the sulfonamide, the hives and the angioneurotic edema of Dr. Sulzberger's patient disappeared. It was then learned that the patient possessed an allergic sensitivity to the sulfonamides. Yes, the sulfonamide was the culprit, and had been so from the very beginning; from the time she first moved in with her friend who had been using the sulfonamide ointment for years, and which she found necessary to apply daily.

DRUG ERUPTIONS

When mouth lesions are believed to be due to stress situations, it is also necessary to rule out systemic drugs as possible causes. For how common it is for an agitated, upset, nervous, sleepless person to take something for the headache, or to quiet the nerves, or for sleep, or to regulate the bowels, or to aid the digestion, and so on. All of you, undoubtedly, have had patients with lesions of the mucous membranes which you were able to attribute to some drug which was taken by mouth or administered by injection.

Probably no aspect of the practice of medicine, and here I refer also to oral medicine, is more important than a knowledge of the allergic drug eruptions. This is because the allergic manifestations produced by a drug taken internally can imitate both the signs and the symptoms of practically every known disease.[4] It is possible then for gingivitis to be due to barbiturates and the related hydantoin derivatives, Dilantin and Mesantoin. These drugs can also cause multiforme and bullous lesions of the mucous membranes. Bullous lesions followed by ulceration may also be caused by quinine, bromides and iodides. Stomatitis and glossitis have followed streptomycin and arsenic. Purpuric eruptions may result from the sulfonamides and antipyrine. And fixed drug eruptions not uncommonly can be traced to phenolphthalein, gold compounds, and bar-

biturates. These are but a few of the drugs and the lesions they may produce within the mouth by allergic mechanisms.

ACRYLIC DENTURES

While it is not my intention to discuss in any detail the incidence or possible causes of allergic contact dermatitis of the mucous membranes of the mouth (allergic contact stomatitis), I do want to say a few words about the sore mouth which is known to follow the use of acrylic dentures. Of course, all of you are undoubtedly very familiar with this form of stomatitis in which the patient complains of dryness, soreness and a burning sensation of the mouth, and examination reveals areas of redness, thickening and often superfical erosions.

A. A. Fisher of our school recently reviewed the literature regarding the primary irritancy and sensitizing potential of the commonly used acrylic resins and added to it the results of his own experience and findings.[5] By doing carefully controlled patch tests on subjects known to be allergically sensitive to the acrylic monomer, he was able to show that it is the unpolymerized monomer (methyl methacrylate) that is responsible for the positive allergic responses of erythema, edema and vesiculation and/or denudation which are noted at the patch test sites or within the mouth at the points of contact of the incompletely polymerized denture as, for example in dentures made by the self-curing process. These same subjects gave negative reactions to the polymethylmethacrylate powder and to dentures made with heat-cured acrylic denture base materials in which there is complete polymerization.

Of particular interest in Fisher's study was the incidence of sore mouth which followed the use of acrylic dentures to which allergic sensitization could *not* be shown. The soreness in these instances he attributed to the ill-fitting plates causing pressure and trauma at various sites. When these subjects were tested by strapping their entire heat-cured acrylic plate to an area on the arm, positive reactions consisting of redness, papules, vesicles and sometimes bullae were noted. This response was not considered to be allergic as these subjects did not give positive patch test reactions to the liquid monomer. That this was a non-specific, non-allergic pressure effect caused by the entire denture or pieces of the denture had previously been mentioned by Nyquist.[6]

In addition, Fisher tested 70 controls, 20 men and 50 women, who did not have mouth symptoms. To the forearms of these subjects heat-cured acrylic dentures were strapped in place and left for 48 hours. When the dentures were removed at the end of the 2 day period, vesicles and small bullae were noted at the points of maximum pressure in 2 men and 15 women. In all subjects some erythema and papulation was noted; these reactions were more marked for the women than for the men. Fisher has since told us that all of the women who responded with vesiculation were over 40 years of age. Biopsies made from involved areas showed subepidermal bullae without an eczematous reaction on microscopic examination.

In discussing these findings with Dr. Sulzberger, he expressed the opinion that the susceptability of both the oral mucosa and the glabrous skin of these patients to respond to pressure with the formation of vesicles and bullae was conceivably due to some peculiar state of the epidermo-dermal junction of the skin and mucous membranes and that one might study these cases as possible hidden or latent examples of a "form fruste" of *epidermolysis bullosa.*

ENDOCRINE FACTORS

Because of the high incidence of this peculiar tissue response in women past the age of 40, when many changes in the endocrinologic system take place, Dr. Sulzberger and I have speculated on whether hormones might play a role in producing this local reaction. I am sure that all of you are fully aware of the influence that female hormones exert on the skin and its appendages. This is evidenced by the dramatic changes that take place in hyper or hypothyroidism, in Addison's disease, with pituitary tumors and associated with masculinizing tumors of the ovaries. Less dramatic, but definite changes occur in the texture and pigmentation of the skin and mucous membranes and in the growth characteristics of the hair during

pregnancy. Subtler clinical changes, which are more noticeable in some women than in others, take place during the menstrual cycle.

What is of particular interest to those of us who are concerned with diseases of the mouth is the fact that changes in the buccal mucosa take place on a microscopic level during the menstrual cycle. This has been demonstrated by Schreus and co-workers.[7] Smears of desquamating cells taken concomitantly from the oral and vaginal mucosa showed corresponding cyclic changes when studied by the Papanicolaou vaginal smear technic. While these are not obvious clinical changes, they are of sufficient importance not to be overlooked. These changes which take place cyclicly on a minor scale are undoubtedly multiplied many times during adolescence and menopause. One is obliged, therefore, to consider the possible role played by hormones in Plummer-Vinson and Sjogren's syndromes, in that these conditions become manifest in women usually during the 5th and 6th decades.

Furthermore, I agree with Sulzberger and Baer as they point out in the *Year Book of Dermatology and Syphilology*[8] that the higher incidence of leukoplakia of the mouth in men as compared to women may, in part, be on a hormonal basis and not just be due to smoking as supposed in earlier days when fewer women smoked.

Where the normal physiologic and pharmacologic functions of the endocrine secretions and their metabolites end and where they begin to function to cause disease as a result of stress situations and the General Adaption Syndrome, I do not know. But in view of the changes which the various hormones are capable of producing in the skin and mucous membranes under apparently normal conditions, it seems quite logical to include them as a part of the adaptive mechanism which contributes to disease of these tissues following stress.

Our increasing knowledge of adaptive hormones and hormone derivatives involved in the stress syndrome will undoubtedly aid us in the future to better understand disease and disease mechanisms in the mouth and in the skin and afford us with additional tools with which to fight these very diseases and their effects.

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LE ROLO DEL STRESS IN DISORDINES DERMATOLOGIC DEL BUCCA

Dr. med. Victor H. Witten

SUMMARIO IN INTERLINGUA

Durante que il ha multe disordines dermatologic del mucosa oral que es apparentemente relationate a situationes de stress, in le lumine de nostre presente cognoscentias il esserea erronee asserer definitivemente que ille conditiones es relationate al Syndrome de Adaptation General de Selye. Secundo le currente conceptos, un syndrome de adaptation general pote occurrer post numerose typos e grados de stress. Per consequente on pote specular que un "connexion defective" in le "circuito" de adaptation del corpore o alicun defecto o debilitate in le area o

le organo terminal es capace a afficer le susceptibilitate local del mucosa oral in tal maniera que varie signos e symptomas se manifesta in consequentia del effecto de un agente stressorial. Un tal agente pote afficer le bucca localmente, o illo pote exercer su effectos ab un distantia per le mediation del systemas organic. Ben que le mechanismos per que le varie lesiones oral se produce via le syndrome de adaptation general es ancora incognoscite, varie speculationes es possibile que permitterea explicar al minus alicunes del alterationes occurrente in le membrana mucose. Es etiam mentionate le conditiones intraoral que seque le alterationes physiologic e pathologic producite per le stresses "physiologic" que es nunc considerate como parte del syndrome de adaptation general. Un exemplo es le siccitate del bucca que frequentemente afflige le orator public o le cantator qui se trova sub un condition de stress.

Es signalate altere possibile causas de lesiones oral, specialmente causas sin relation al concepto de stress, le quales es de considerabile importantia ben que illos es frequentemente negligite. Per exemplo, le conditiones oral del quales le patiente se plange es possibilemente le resultato non del toto del tension de haber prendite un difficilissime examine scholar sed plus tosto del numerose cuppas de caffe que le patiente imbibeva pro tener se eveliate o del multe cigarrettas que ille fumava pro calmar su nervos o de negligentias inusual in su hygiene oral, etc. Reactiones allergic es etiam demonstratemente capace a causar disturbationes intraoral. Per exemplo, le lingua ardente o le vesiculas al interior del labios es possibilemente non del toto le resultato de un disturbation nervose sed pote esser un simple eruption medicamentose causate per le "droga nerval" e le pillulas somnifere ingerite pro "calmar le nervos" o per le medicina prendite pro un attacco de migraine o de disconforto gastric, etc. E finalmente il ha le lesiones oral que es causate per un sensibilitate allergic a certe dentaturas acrylic e que debe esser differentiate ab ille altere lesiones producite per pression e trauma resultante de artefactos dental.

Nostre crescente cognoscentias in le campo del hormones adaptative e del derivatos hormonic que es involvite in le syndrome de stress va sin dubita avantiar nostre futur comprension del morbos oral e dermatic e de lor mechanismos e provider nos de nove methodos pro combatter ille morbos e lor effectos.

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PHYSIOLOGICAL ASPECTS OF LIFE STRESS*

Lawrence E. Hinkle, Jr., M.D.†

"Life stress" is a general term which refers to the physiological and psychological effects of man's reaction to his life situation. Reactions to life stress fall into the general category of "stress reactions." All of these things which might be said about "non-specific" stress might be said about "life stress" also. The cellular response to stress and the "general adaptation syndrome" as described by Hans Selye are therefore pertinent to this topic; but they are adequately described elsewhere, and we shall not discuss them in this paper; neither shall we discuss the specific psychiatric concepts relating to the nature of interpersonal relations. We shall confine this discussion to certain special aspects of the "life stress", and give a few examples of its pertinence to illness.

We may profitably begin with a consideration of the term "stress". "Stress", as you know, is not a biological term. It is a term applied by engineers to static systems such as steel beams, where "stress" is the name given to "internal forces" which counteract "external forces" or "loads". Biological systems, however, are not static systems. They are systems which exist in a state of "dynamic equilibrium". That is to say, the constitutents of living cellular systems are constantly interacting with each other, but in such a manner that the general structure of the cells and their surrounding environment remain relatively constant. The general term "homeostasis" was invented by Walter Bradford Cannon, to denote the process by which the consistency of the cellular systems is maintained. The acid-base buffer systems of the blood are examples of mechanisms which help to maintain homeostasis at a cellular level. The maintenance of constancy in a living system in itself requires a constant expenditure of energy. In the engineering sense of the term, therefore, the very existence of life in a system is always associated with the existence of "stress".

If one wishes to extend the meaning of the word "stress" to make it applicable to living systems, one must think of "stress" as the sum total of all of the energy tranformations which take place within a living system in order to restore the system to the state in which it was prior to the time it was acted upon by an external force or "stressing agent". The "stressing agents" with which Dr. Selye has concerned himself are primarily agents such as physical blows, and thermal or chemical agents, which directly apply physical energy of some sort to the cellular systems. At first glance it may seem that "life stress" is somewhat different from these, because here the stressing agent does not transfer any energy directly to the cellular system. "Life stress", as we have said, refers to those stresses which arise out of man's relations to the people, events, and situations in his environment. The stimulus situations which lead to this type of stress exist entirely in the surrounding environment. The total energy received from the by an individual is only that minute amount which impings upon his eyes and ears, and the other organs of special sense. It is obvious that the energy thus transferred from environment to the individual can not in itself create very great stress within the living system. We have a look upon life situations which initiate "life stress" not as energy-laden "loads", but as signals or "stimuli". Like a match applied to a keg of gunpowder, the small amount of energy received from such a stimulus, when applied at the right time and place, is capable of initiating a massive and sustained energy transformation within the organism, which arises from the organism's own latent energy rather than from energy received from sources outside of the system. These energy transformations take the form of alterations of physiological functions and gross be-

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havior, and have been called "adaptive reaction patterns".

For example, a cat, upon seeing an angry dog, will arch her back, raise her hair, spit and flee. While this is going on there will be an increase in the blood pressure of the cat, in its heart rate, cardiac output, general metabolic rate, oxygen consumption and glucose utilization, and a decrease in its gastrointestinal peristalsis, urine production and blood clotting time. A great many physiological changes take place within the cat in response to the signal. They take place as part of the cat's adaptation to the implications of seeing an angry dog. They enable the cat "in advance", so to speak, to take action which will safe its life.

But note that all of the physiological alterations which take place in the cat in response to the situation also create a disturbance of homeostasis within the cat. The entire physiologic pattern of the resting cat is disturbed by this preparatory action. The "stress" which arises in the cat is the result of this, and is proportional to that amount of energy which must be expended in order to return the bodily economy of the cat to its original state. "Life stress", then, is the stress which results from efforts to maintain homeostasis in the face of disturbances produced by adaptive reactions set up in response to the stimulus of external situations.

What is the nature of these stimuli which arise in the external environment? We described them as "situations arising from interpersonal relations". For the cat which we discussed, the stimulus was the sight of the dog—a complex pattern of visual and auditory stimuli which meant to the cat, "dog" and "danger". The fact that it meant "danger" to the cat was presumably the result of the fact that the cat had had previous experience with dogs. That is to say, this signal which arose in the surrounding environment had a highly personalized meaning for the cat. This is true of most of the stimuli which lead to "life stress". Their significance is dependent upon the past experience of the individual who perceives them.

Take, for example, one's own personal experience with seeing two different people, one of whom is a welcome friend, the other of whom is a dangerous enemy. The actual stimuli are simply the sight of two different people; but our reaction to each of these sights is dependent upon our past experience with each of these two people, and is different in each case. Nor does the signal have to be so complex as the sight of a whole person. Suppose that the person in question customarily wears a certain type of dress, or uses a certain type of perfume; or suppose that one has had a pleasant association with this person while listening to certain music; thereafter the odor of the perfume, the sight of a similar dress, or the hearing of a few bars of the music may be sufficient signal to set off the same adaptive reaction pattern which the sight of the whole person would evoke. Nor need the individual

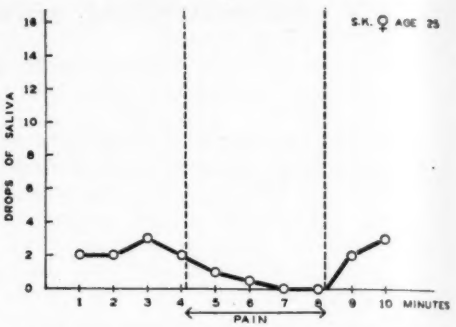

Figure 1—Diminution in Saliva Excretion during Stress.

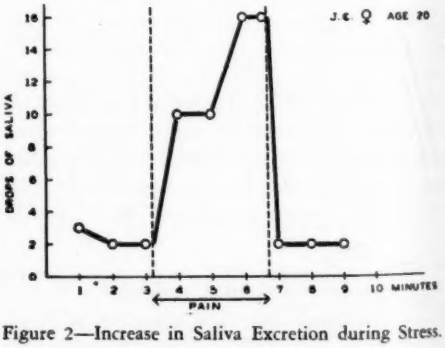

Figure 2—Increase in Saliva Excretion during Stress.

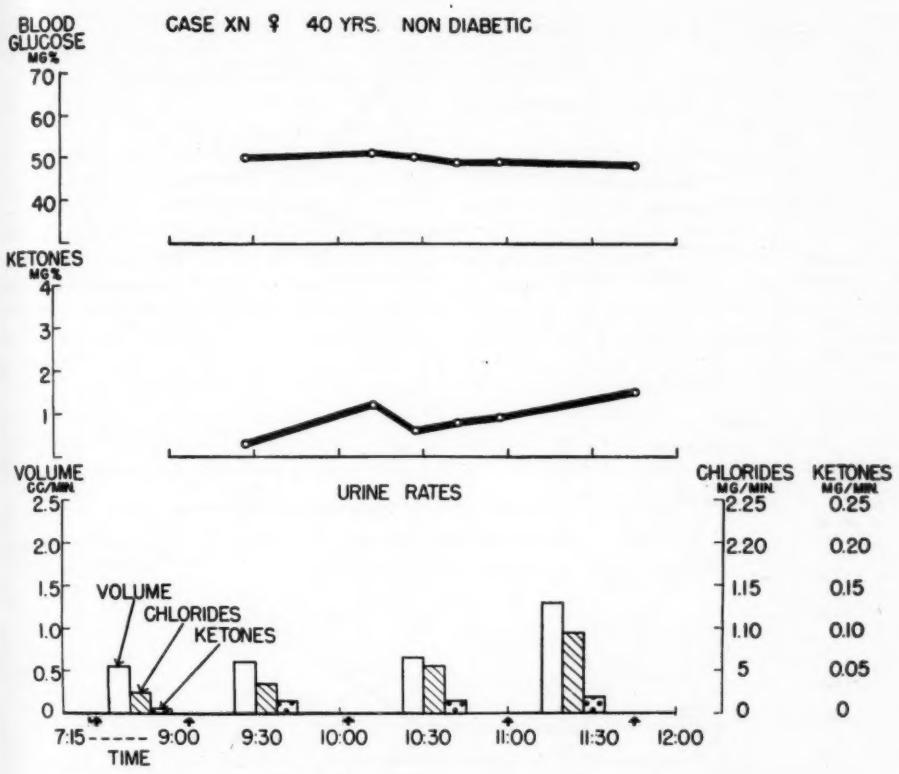

Figure 3—Metabolic adaptation to starvation occurring in a healthy woman.

be entirely aware of the signals which he receives from his surrounding environment. Sometimes, for example, one will come into a room when music is being played and find himself overcome with a feeling of nostalgia which he cannot entirely explain. This phenomenon is based upon receipt of a conditioned signal for which there is little conscious memory, but which is still an efficient stimulus for setting off an adaptive reaction pattern.

The reaction patterns themselves represent, in a large sense, methods of dealing with the implications of situations as they are perceived. They are "purposeful" in what one might call a teleological sense. For example, let us go back to the cat and the dog. All of the physiological changes which are taking place in the cat may be said to have a potential value in preserving the cat's life by mobilizing the cat for muscular activity. Upon the sight of an angry dog, the cat does not, for example, begin to purr and rub up against it, and the cat does not activate its gastrointestinal peristalsis as it would at the sight of food. The adaptive reaction pattern which the cat displays is a highly organized, purposeful pattern, involving a number of body systems, and aimed at dealing with what the situation implies to the cat.

The mechanism by which these reaction patterns are evoked is relatively clear. The organs of special sense receive the stimuli. Within the cerebral cortex these stimuli are integrated into patterns and recognized as such. Here they are also compared with past experiences, some of

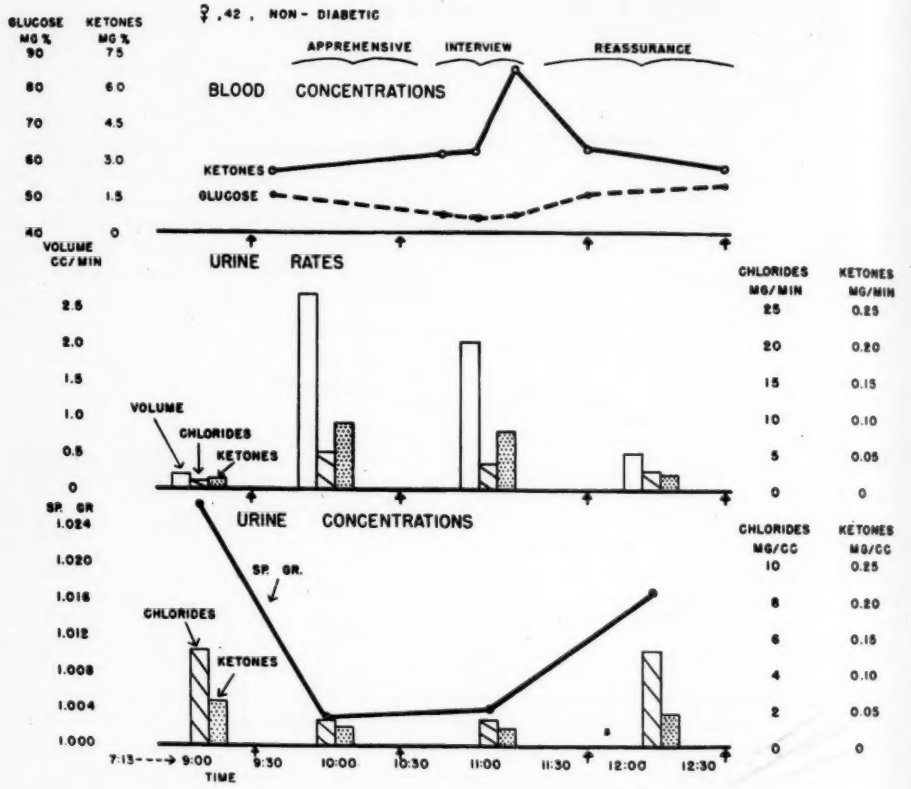

Figure 4—Metabolic adaptation to stressful life situations occuring in a healthy woman.

which are consciously remembered, and some of which are not. The adaptive reaction patterns "appropriate" to the meaning of the stimulus are organized in the cortex and the lower centers of the brain. From the brain the outflow is to any of the effectors of the central nervous system: the voluntary nervous system, the autonomic nervous system, and, (by way of the hypothalamus and the pituitary) the glands of internal secretion. Any or all of these various effector systems may be involved in adaptive reaction patterns.

Let us consider a few typical adaptive reaction patterns. A speaker this morning mentioned the fact that when a man is called upon to speak before an audience, he may develop a dry mouth. Sometimes patients may develop dry mouths when they come in for dental treatment. Figure 1 shows what happened to the saliva excretion of a person during the painful application of a dental drill to his tooth. This person was extraordinarily apprehensive about the procedure and found it very unpleasant. There was a marked diminution in saliva production during the period of pain. Figure 2 shows the salivary response of another person exposed to the painful drilling of a tooth. This second subject had been looking to the opportunity to have this dental treatment. He regarded it as somewhat uncomfortable but a much desired experience. This person, for whom the painful drilling had a different meaning,

showed an increase in saliva production during the period of stimulation.

We may briefly review some adaptive reaction patterns in several other organ systems. Figure 3 is a diagram of the concentration of blood glucose and ketone bodies, and the urinary excretion of water and electrolytes of a healthy woman. Ketone bodies are fat breakdown products. The level of these in the blood is an indicator of the level of fat metabolism. One can see that the concentration of these substances in the blood and the rate of excretion in the urine are rather constant in the individual under basal conditions. However, with the passing of time, and in the absence of food, the body depletes its stores of carbohydrates more rapidly than its stores of fat. The blood glucose concentration falls very gradually, and as it falls more fat is consumed, and more ketone bodies appear. This adaptive reaction pattern is "designed" to maintain and preserve the glucose present in the body by substituting fat as the chief fuel for muscular work. At the time this metabolic rearrangement takes place, there is an excess of body fluid, which is excreted in the form of an excess of urine.

One may initiate this adaptative reaction pattern by a surgical operation, anesthesia, or physical trauma, as well as by starvation. In Figure 4 we see it being initiated by "life stress". This healthy woman came in to talk with her physician and was very apprehensive about what he would say to her. Their discussion centered around unpleasant episodes in her past and present life. It aroused a good deal of hostility and some depression in her,

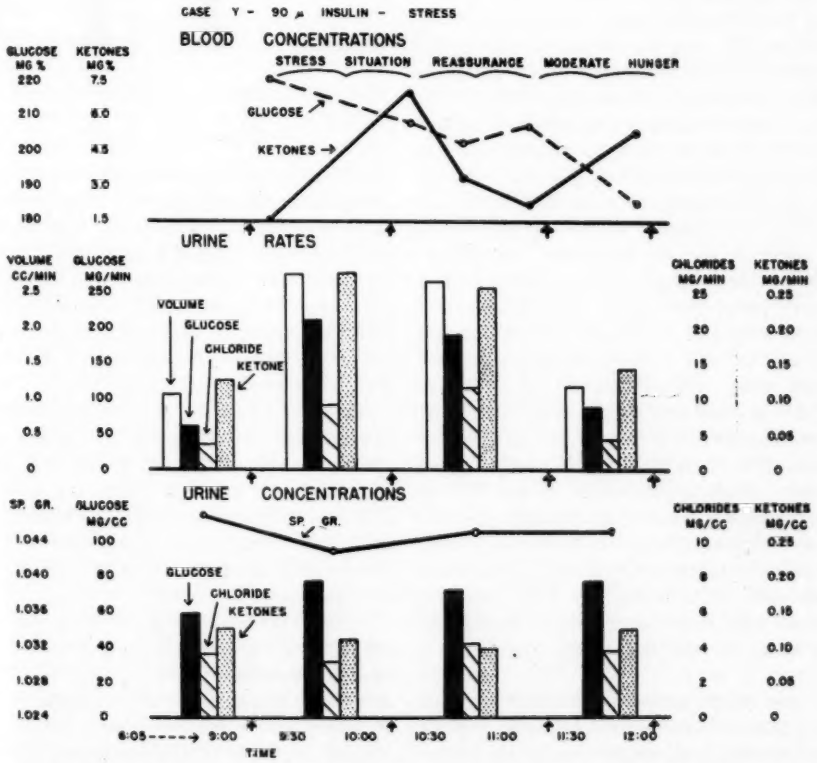

Figure 5—Metabolic changes occurring in a diabetic girl during a stressful life situation.

as well as anxiety. As she became anxious, her urine excretion rate went up, her blood ketones increased in concentration, and her blood glucose fell. The fall in the blood glucose concentration was accompanied by a fall in serum inorganic phosphate, suggesting that there was an increased uptake of glucose by the tissues. There was also a rise in the metabolic rate, a fall in R. Q., and an increase in the excretion of nitrogen and potassium in the urine. All of this suggests that this woman not only utilized more energy and burned up more fat under these circumstances, but was also breaking down protein in order to make glucose.

The clinical importance of this phenomenon is illustrated in Figure 5, which shows the metabolic changes which took place in a young diabetic girl who was suddenly thrown into a situation of stress. Her blood ketone concentration rose, her urine output went up markedly, and she rapidly began to decompensate in the direction of diabetic acidosis. When the situation was altered, she began to return to her previous state of metabolic equilibrium, despite the fact that she received no insulin or other treatment. Reactions such as this can seriously complicate the management of diabetes.

Humans may display adaptive reaction patterns either acutely or chronically. An adolescent girl who develops an acute conflict with her mother may develop an acute exacerbation of her diabetes and go into a coma. A business man going through a period of hard work and financial worry may develop chronic exacerbation of his diabetes which lasts for many months. Usually such fluctuations in illnesses are related to mundane and intensely human situations which might occur in the life of anyone. Figure 6 shows the changes in the diabetic symptomatology of a woman whose husband had a mistress. On the weekends when he was away from home, his wife's diabetic symptoms were much more severe; during the week, when he was home, her diabetes was better.

We may briefly mention a number of other adaptive reaction patterns which involve various organic systems, and which seem to be pertinent to disease.

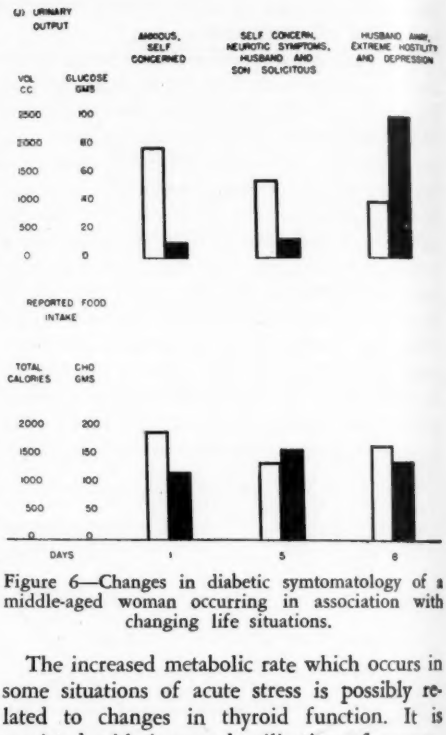

Figure 6—Changes in diabetic symtomatology of a middle-aged woman occurring in association with changing life situations.

The increased metabolic rate which occurs in some situations of acute stress is possibly related to changes in thyroid function. It is asociated with increased utilization of oxygen, increased CO_2 production, and increased protein breakdown, with the appearance of increased amounts of nitrogen and postassium in the urine. It may be pertinent to the development of hyperthyroidism.

The adrenal cortex, of course, plays an important role in reactions to life stress. It can readily be shown that these recations may be associated with a fall in circulating eosinophils and increased excretion of corticosteroids in the urine. By inference we may assume that any process influenced by adrenal corticoids may be influenced by "life stress".

Renal functional changes may be involved in adaptive reaction patterns. Some reaction patterns (usually associated with feelings of anxiety) may be accompanied by an increased excretion of water and electrolytes, with an increased volume of urine as well as an increased frequency of urination. Other reactions, usually

associated with intense fear and anger, may be accompanied by a temporary and almost complete oliguria. People exhibiting chronic overactivity and tension may retain salt and water to the extent of developing a weight gain of several kilograms, and mild peripheral edema. All of these renal phenomena appear to be mediated by hormonal effects on renal tubular absorptive mechanisms. They have pertinence for illnesses such as headache, pre-menstrual edema, and cardiac failure.

Adaptive reaction patterns related to the cardiovascular system may involve acute or chronic elevations of blood pressure and peripheral vascular resistance similar ot those seen in "essential hypertension". Changes in blood viscosity and clotting time may occur also. Both tachycardia and bradycardia may occur, and seem to be mediated through the cardioregulatory nerves. Cardiac arrythmias, including auricular and ventricular premature contractions, paroxysmal tachycardia, and paroxysmal auricular fibrillation, may be precipitated during acute stress reactions. The more serious arrythmias occur in previously damaged hearts. Changes in the T waves of the electrocardiogram occurring under stress suggest that the coronary circulation may be effected by neural influences also. The combined effects of stress reactions involving cardiac function and peripheral resistance may lead to changes in cardiac output and exercise tolerance. All of these phenomena are pertinent to the diagnosis and management of cardiovascular disease—for example, one may see a previously relatively well compensated cardiac develop decompensation in a setting of stress, and regain his compensation when the stress is relieved.

The function of the human gastrointestinal tract responds so actively to man's relation to his environment that its reactions perhaps have been studied more than those of any other system. We have mentioned changes in salivary secretion occurring under stress. Changes in motor function of the pharynx and esophagus may be involved in various forms of dysphagia and in globus hystericus. An increase in the motor activity, acid secretion, and mucosal engorgement of the stomach is apparently the cause of most of the "dyspepsia" and "acid indigestion" which occurs in people under stress. If sufficiently intense and prolonged, these increases seem to play an important role in peptic ulceration. Conversely, a decrease in motor activity, secretion, and mucosal engorgement is an important factor in much of the "functional" nausea and "gassy indigestion" which is seen in patients, and especially in persons who are mildly depressed.

The increase in motor and secretory activity of the bowel, and in the secretory activity of the biliary tract and the pancreas, which occur following the ingestion of food, is probably not entirely upon a local reflex basis. It appears to be partly subject to influences arising in the higher nervous centers. Changes in intestinal function originating in this manner affect the symptomatology (and apparently the course also) of regional enteritis. Clinically they also seem to have a relation to such syndromes as biliary dyskinesia and chronic pancreatitis.

The act of defecation is associated with an increase in the activity of the proximal segments of the large bowel accompanied by the relaxation of the anal sphincter. So-called "functional diarrhea" seems to be the result of the frequent recurrence of this adaptive reaction pattern. Conversely, "functional constipation", which is associated with a generalized relaxation of the proximal bowel accompanied by spasm in the sigmoid and tension in the anal sphincter, also appears to be the result of the chronic display of an adaptive reaction pattern. These reaction patterns undoubtedly have a relation to ulcerative colitis also. The exacerbations and remissions of this serious disease are often closely correlated with the patient's reaction to his life situation. The illness is refractory to any form of treatment, and does not respond dramatically to psychotherapy, but therapeutic measures related to dealing with the patient's adaptation to his environment are sometimes quite rewarding.

Adaptive reaction patterns relating to the respiratory tract appear to play an important part in the genesis of a number of respiratory syndromes. The inhalation of noxious substances, such as ammonia fumes or smoke particles, leads to a prompt reaction on the part

of the naso-respiratory mucous membrane. This includes engorgement and edema, increased secretion, the partial blockage of nasal passages and constriction of the bronchiolan musculature. A similar reaction may be produced by pollen or other antigenic materials in persons who are sensitive to these. This reaction pattern may also be evoked by stimuli arising in the central nervous system. It seems to be involved in the genesis of the vasomoter rhinitis and asthma that is sometimes seen in persons in situations of acute or chronic stress. Chronically engorged mucous membranes associated with stress reactions also seem to predispose to the development of chronic bacterial infections in the sinuses, and to "post-nasal drip". Persons who are exhibiting respiratory reaction patterns, appear to have a higher incidence of acute febrile respiratory infections. "Hyperventilation syndromes" are another form of adaptive reaction pattern that is occasionally seen in anxious people.

Reaction patterns involving the skin are also seen frequently. The cold, moist hands and feet exhibited by anxious people are related to peripheral vasoconstriction. Changes in the tone of the small vessels of the skin produced by autonomic stimuli also affect the permeability of these vessels and their capacity to react to local trauma: a phenomenon which seems to explain the occurence of hives in some persons under stress. Eczema may be related to similar reaction patterns. Sebum secretion is likewise affected by autonomic stimuli and is under hormonal control; the occurrence of acne in persons in a setting of chronic stress seems to be related to this.

This is only a partial list of the phenomena which may occur in humans as part of their response to their social environment, for it seems likely that any physiological process which can be directly and indirectly affected by the nervous system or the glands of internal secretion may be altered by man's reaction to his life situation. The pertinence of this to any sort of disease process is, therefore, a legitimate subject of concern for the physician. Although such factors have small pertinence for some diseases, we are learning more and more to take them into consideration in our evaluation of the genesis and course of illness. Undoubtedly those who are concerned with the physiology and pathology of disorders relating to the mouth and the teeth will find some pertinent reaction patterns relating to these structures, also, if the matter is made a subject for careful investigation. I hope that it will engage the interest of some of you in the future.

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ASPECTOS PHYSIOLOGIC DE "STRESSES DEL VITA"

Dr. med. Lawrence E. Hinkle (Filio)

SUMMARIO IN INTERLINGUA

Si nos vole transferer le concepto del "stress" ab le scientias physic al scientias concernite con systemas vivente, nos debe definir "stress" como le summa total de omne le transformationes de energia que occurre intra le systema vivente con le objectivo de restaurar le systema al stato in que illo se trovava ante le tempore del impacto super illo de un fortia externe, i.e. de un "agente stressorial." Le "agentes stressorial" considerate per Dr. Selye es primarimente agentes del typo de colpos physic e de fortias thermal o chimic que applica energias physic de un forma o un altere directemente al systema cellular. Le prime impression es que le concepto de "stresses del vita" differe del stresses mentionate proque in le caso del stresses del vita le agente stressorial non transfere ulle energia notabile directemente al systema cellular. Le concepto

del "stresses del vita," como nos lo defini, designa le stresses que resulta del relationes del homine con individuos, evenimentos, e situationes de su ambiente. Le situationes stimulatori que produce isto typo de stress existe integremente in le ambiente externe. Le summa total del energia que le individuo recipe in tal processos es solmente le parvissime quantitate de energia que impinge super su oculos, su aures, e su altere organos de perception sensorial. Il es obvie que le energia assi transferite ab le ambiente a in le individuo non pote per se crear un multo grande stress intra le systema vivente del individuo in question. Nos considera situationes in que le stress es definitemente initiate non como un tension cargate de energia sed plus tosto como un signal o stimulo. Comparabile al effecto de un flammifero super un barril de pulvere, iste parvissime quantitate de energia recipite via tal stimulos pote—si applicate al correcte tempore e al correcte loco—initiar un massive e continue transformation de energias intra le organismo, i.e. de energias derivate ab le reservas latente del organismo mesme plus tosto que recipite ab fontes extra le systema. Iste transformationes de energia ha le forma de alterationes del functiones physiologic e del conducta manifeste del individuo. Illos ha essite designate como "configurationes de reactiones adaptative."

Per exemplo, un catto que vide un can de mal humor va arcar su dorso, eriger su pilos, spuer, e fugir. In le processo il occurre in le catto un augmento del pression sanguinee, del pulso e del rendimento cardiac, del rapiditate metabolic, del consumption de oxygeno, e del utilisation de glucosa e un reduction del peristalsis gastrointestinal, del production de urina, e del tempore de coagulation del sanguine. Un grande numero de alterationes physiologic occurre in le catto in responsa al signal canin. Illos occurre como parte del adaptation del catto al situation in que un can de mal humor ha apparite. Illos permitte al catto ager "per anticipation" pro salvar su vita.

Sed nos non debe oblidar que omne le alterationes physiologic que occurre in le catto in responsa al situation in le qual illo se trova, resulta etiam in un disturbation del homeostasis intra le catto. Le integre configuration physiologic del catto in reposo es disturbate per tal activitate preparatori. Le "stress" que se manifesta in le catto es proportional al quantitate de energia requirite pro retornar le economia corporee del catto a su stato original. Le "stress del vita," per consequente, es le stress que resulta del effortio interprendite per le corpore pro mantener homeostasis in despecto de disturbationes producite per reactiones adaptative a stimulos de origine in situationes externe.

PSYCHOLOGICAL ASPECTS OF STRESS: IMPLICATIONS FOR MODERN DENTISTRY*

ALBERT STUNKARD, M.D.†

Every so often there comes along an idea in one field of science which is so useful in organizing data, and of such general relevance, that it escapes the boundaries of its field of origin, and enters the discourse of other disciplines. In the last century such an idea was that of evolution which rapidly outgrew its special use in taxonomy to influence the whole field of biology, and, indeed, much of modern thought. Ten years ago a similar phenomenon began to occur in the field of communication engineering. And already the concepts of negative feedback and teleological mechanism have had profound consequences in fields as far distant as animal ecology, psychology and neurological theory.

The same kind of generalization seems to be occurring with the idea of stress. In his work in endocrinology Selye[1] has shown how this concept from the physical sciences can be useful in explaining the adjustments of living organisms. It has become one of the nuclear concepts in the new and still developing field of psychosomatic medicine,[2] and it has excited interest in every branch of the medical sciences. For it holds forth the possibility of achieving a unified theory of health and disease, that ideal which vanished with the medicine of the Greeks.

Now any fruitful concept, in addition to organizing available information, has another and not less useful function—that of clarifying what information is not available, and suggesting how it may be obtained. Any attempt to consider the implications of the psychological aspects of stress for modern dentistry demonstrates such a deficiency in our information in a most striking manner. For of all the occupational groups there is none which has a more immediate and more compelling contact with the psychological aspects of stress than the dental profession. Yet there is no accepted body of knowledge dealing with this subject, nor indeed, a single worker with a thorough knowledge of the problems of dentistry and psychiatry. There could hardly be a more dismal commentary on the current state of dentistry and of psychiatry, and of the absence of their collaboration.

This failing is the more painful in that such collaboration could be most fruitful. This impression is derived in large part from experience in the Comprehensive Care and Teaching Program of the Cornell University Medical College, where an attempt is being made to adapt psychiatric insights and techniques for use by medical practitioners. The problems of the dental practitioner are similar enough that many of the same considerations should apply.

Work in the medical clinic has indicated that the chief difficulties in patient management, and the chief failures to achieve optimal therapeutic results stem from irrational attitudes on the part of the patient. These irrational attitudes are determined by unfortunate past experiences in the lives of the patients and are in large part unconscious. Although irrational, these attitudes are intensely meaningful. Knowledge of psychodynamics, and its application to patient care, allow these attitudes to be understood and modified in such a way as to decrease antitherapeutic behavior, increase the effectiveness of treatment, and, not the least important, increase the doctor's comfort and satisfaction in his work.

These points may be exemplified by reference to a situation in patient care.

CASE HISTORY

A 70 year old Russian-born tailor was seen recently in the medical clinic of the New York Hospital for a chief complaint of weight loss

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and malnutrition of one year's duration. His symptoms began a year before he came to the clinic, and shortly after it had been necessary to extract all his teeth because of periodontoclasia. Despite an apparently satisfactory postoperative course, with complete clearing of the infection, he had experienced difficulty with his dentures. After a bitter argument with the dentist who had performed the extractions, he began to make the rounds of the local practitioners, always complaining, always dissatisfied. He had been assured several times that it was just a question of getting used to the dentures, that he had to try a little harder, that there was really nothing wrong with them. Still he kept trying to find someone who could make him a set of dentures he would find satisfactory. During this time he had underlined his complaints by a consistently inadequate diet, saying that he was quite unable to eat proper foods with his mouth in such terrible condition.

Examination of the patient revealed considerable weight loss and some distinctive behavioral features. His face was sad and drawn, his shoulders slumped, he seemed weary and defeated. It was only when he discussed his dentures that he showed any animation, and then it was to complain in a petulant, whining voice about how little help he had received from all the dentists he had seen, and how much money they had taken from him, and how unfair it all was.

Furthermore, his symptoms had not been confined to his mouth. Ever since the extractions he had felt tense and on edge, he had had trouble sleeping, he did not "get a kick out of life any more". He had spells of quite acute despondency in which he wondered if it were worthwhile going on. This had become so intense at one point that he had seriously contemplated suicide. Clearly he was suffering from a depression of considerable severity. What were the origins of this depression, and what was its relation to the dental procedures which had preceded it?

A few questions about his personal life elicited much relevant information. He had always been a hard-working man who spent most of his waking hours at his job in the garment district where he was known as a man who did overtime work daily, almost as a matter of course. In recent years his life seemed to have been a series of losses. First his children grew up and left home. Then five years before, his wife had died. His relation to her had left much to be desired, but she had come from the old country, they shared a common language and a common background, and where they lived had been "home".

For a short time after her death he was sad and "sluggish," oppressed by the realization that he was alone and aging in a culture that was still in many ways an alien one. However, he recovered by returning to his life-long source of security, plunging into work harder than ever.

Then, 2 years before, occurred an event which might well have been the final blow to his precarious adjustment. He was retired for old age. Even this blow he withstood, but his manner of doing it was a curious one, and one which left him exceedingly vulnerable. This was to insist that the whole thing had been a mistake, to deny that he was growing old. He managed to get another job, as a night watchman, and to convince himself that although his 68 years made him old by conventional standards, still he was quite young in actuality, and that soon the factory would see the error of having laid him off, and would ask him to come back.

It was in this situation, a year later, that all his teeth were extracted. His first reaction had apparently been one of sheer horror, with a paralysis of all action. He never returned to his job after the extractions, and when he was fired he not only did not protest—he never went out to look for work again.

Gradually his numbed state gave way to some return of feeling, and these feelings centered about his lost teeth. Somehow they became to him the sign of his vanished youth, of his career as a tailor, of his ability to be self-supporting. During his year as a watchman much of his security depended upon his view of himself as a much younger person. Now his edentulous state made this view impossible for him. His ruminations repeated the same

few themes. He was an old man. No one would hire him. His usefulness was at an end. Once his savings were gone he would be left to starve to death.

So, doggedly, hopelessly, he began his rounds of the dentists, complaining of the fit of his dentures. For this was the only way he knew to cry out for help. And all the revisions and new dentures made not one whit of difference because what he really was demanding was the restoration, in some kind of magical way, of his teeth, and his vanished youth. And this demand could no more be satisfied by new dentures than could the murderous rage he felt towards the man who had deprived him of his teeth, and so, of his youth.

ORIGINS OF ANXIETY

This case illustrates some of the points outlined previously. In the first place it indicates how irrational attitudes on the part of the patient can give rise to profound difficulties in his management. It shows how such attitudes can be at the same time irrational and intensely meaningful. It also illustrates how some knowledge of the patient's life situation helps the doctor to gain an understanding of the meaning of events to the patient. Such meanings are clearly not fortuitous, but expressions of personality function with origins as far back as early childhood. It is therefore appropriate to consider some of the factors involved in personality development.

Of all the animals man has the longest period of development before he can achieve independent living. Furthermore, for the longest period of any animal he remains dependent for his very existence upon his parents. For years loss of his parents, or their substitutes, means death to the child. And, as has been shown recently in studies on children raised in orphanages,[3] loss of the love of the parent can be followed by *emotional* death. For these children who received every physical care known to modern medical science, withdrew, regressed, failed to develop normally, and showed permanent stunting of their intellectual and emotional faculties. Even physical death occurred during these infantile depressions; and the wonder was that all of these effects could be reversed if the child were restored to a family circle before the warping process had gone on too long.

A bit later in life another danger comes along—that of physical punishment. On the basis of these two threats to his integrity the child very rapidly learns what to do to keep his parents happy. His whole life, in fact, becomes oriented about the need for keeping in the good graces of his parents. Any disapproval on their part becomes the signal of danger.

As the child developes further, this signal of danger becomes recognized as what we call anxiety. And a major part of man's life is spent in maneuvers aimed at avoiding anxiety. As he becomes more sophisticated, and his mechanisms of defense better established, the origins of danger in the loss of love, or the fear of punishment become more obscure. But always the threat of anxiety stands ready to warn the individual the moment he deviates from the patterns of living he has established in deference to the needs of his parents. It is for this reason that incompatibilities in these patterns have unfortunate consequences for personality function. For conduct which would be prescribed to win parental approval in one situation may be just that which is prohibited in another context. There is, for example, the neurotically ambitious man who felt he had to be best to win his parents approval. On the other hand, he had also incorporated their insistence that he be gentle, kind, always loving his neighbor as himself. In a situation where the only possibility of being first lies in clobbering his neighbor, such a man may well react with intense anxiety.

THE MEANING OF TRANSFERENCE

Faced with this anxiety, there are a certain number of defensive measures he might use. One of these is of such overwhelming significance in the doctor-patient relationship that it will be considered at greater length. This is the phenomenon known as transference.

This word was originally coined by Freud to signify the proclivity of patients to transfer to the doctor attitudes and emotions which were more appropriate to people in their earlier

life. In its original context transference referred to sexual attitudes, and in some circles it retains this connotation. But extensive investigation[4, 5] has revealed the enormously widespread use of this technique by people in trouble, and the importance it assumes in the doctor-patient relationship.

The tendency toward transference arises from the long years of childhood dependence upon parents who were viewed as omnipotent or magically powerful authorities. In those days when they were the source of all gratification of needs, and of all security, the response to any threat had been to turn to the parents for protection. And this strongly conditioned stimulus has remained in all of us as a relic of our past. Under the stimulus of anxiety, when more realistic measures to deal with the situation fail, all of us turn to some degree to transference behavior. And the more intense the anxiety is, the less likely we are to recognize consciously what it is we are doing. In a blind, compulsive way we endow a person in our current environment, perhaps the boss, with some of the power we had attributed to our parents in our early years. Then we seek to influence him to gain the help we fantasy he can give us in our difficulties.

Sometimes it actually works. Some poor unsuspecting boss, flattered by all the attention and respect he seems to be getting, will occasionally pitch in and give a hand. Even just going through the motions may help.

But usually it's a futile business. The kind of behavior which used to talk father out of a spanking, repeated in a rigid way, taking only passing account of current realities, is not likely to have a deterring effect on a boss who is planning to fire you for being over-age. And the failure of such attempts will only intensify the anxiety. For in addition to the reality situation, there is now the neurotic concern that there must have been something pretty bad about you in the first place for the boss to treat you in such a punitive manner.

This sequence of events contains the essence of neurotic behavior. Adaptive measures designed to protect the individual during his earlier years of helplessness and dependence become stereotyped, and are used in a blind, repetitive way to solve problems of adult years.

THE DOCTOR-PATIENT RELATIONSHIP

The origins of neurotic behavior have been considered at length because these factors determine much of what goes on in the doctor-patient relationship. For this relationship is rarely, if ever, free of the kind of distortions which derive from such inappropriate adaptations. In the first place, a patient never comes to a doctor unless he is anxious. He may be anxious about a pain in a tooth, or in his abdomen, or he may be anxious about the troubles he is having with his mother-in-law, but he does not come unless he is anxious. And anxiety is the stimulus *par excellence* for the manifestation of transference behavior. In the second place the doctor is a culturally prescribed authority. Everyone reacts to a greater or less extent with awe and deference to the doctor. And anyone who is anxious enough is in no position to question these cultural imperatives.

It is not difficult to see how such transference behavior can make good patient care a very difficult proposition indeed. In the case cited earlier, the patient viewed the dentist who performed the extractions as a cruel mutilator, and others as powerful figures who could somehow restore his teeth and his youth. As long as his behavior was designed to ward off the threat of the first, and to keep heckling the second till they gave him what he wanted, he was in no frame of mind to settle down to such mundane and limited problems as making his dentures comfortable.

There are no statistics on how much of modern dental practice involves problems of this type. Clearly there is need for a thoroughgoing case-finding survey to establish the incidence of emotional disorders complicating dental practice. Even if the incidence were found to be low, ignorance of emotional factors in patient care would cost heavily in terms of incorrect diagnosis, inadequate treatment and wasted time. But if the current studies of community mental health are any indication of its magnitude,[6] this may well be the single

largest problem facing the dental profession.

The importance of this problem transcends even its effects on patient care. For the intense and intimate character of the doctor-patient relationship ensures that any difficulties in caring for the patient will find prompt expression in his anxiety and hostility. And the dentist does not escape unscathed from this assault. The effects on the dentist of hostility in his patient may need no comment. No one can endure hostility over any length of time without very unfortunate effects on his self esteem and personal functioning.

The patient's anxiety, paradoxically, is perhaps even more detrimental to the dentist than his hostility. Recent experiments[7] have demonstrated that anxiety in one person is communicated in as yet obscure, nonverbal, ways to those in his presence with uncanny speed and effectiveness. And of all the human emotions that can exhaust a person, deprive him of the just fruits of his labor, and embitter him in his work, anxiety stands second to none.

A PROGRAM OF ACTION

Thus far this discussion has been concerned with inferences about what *may be* happening in the doctor-patient relationship in general. That is far from knowing what *is* happening in any particular relationship, and still farther from prescribing a course of action. There is only one way to do that, and that is to study the problem—intensively, on the spot, and for the purpose of finding answers. It is time that just this were done.

It should not be particularly difficult in terms of the benefit to be derived. Problems which need solving are relatively clear, and this is already a considerable advance. They are: (1) the impact of dental procedures upon the emotional state of the patient, and the character of the resulting doctor-patient relationship, (2) the influence of life stress on the tissues of the oral cavity, (3) the way in which the oral cavity, because of its enormous psychological significance, is utilized as a means for the expression of emotional conflicts which have their origin far from the dentist's office.

The tools for this investigation are at hand in the techniques of modern medical science. And the situation in which they can be used presents opportunities for research which could be the envy of workers in less clearly defined situations. There is hardly a branch of the medical sciences which provides a more standardized situation, more easily controlled external stresses, or better possibility for observation.

However, this is a field in which the problems will yield slowly to half-hearted and half-time measures. It needs trained investigators with the time to study phenomena where they lead. It needs teachers to transmit the insights to the oncoming generation of dental students. Finally, it requires that these same students be trained in the appropriate techniques to enable them to undertake their own investigation of the stresses involved in dental practice and how they may be lessened.

There is one institution which is organized to provide these opportunities—research, teaching, and patient care. This is the university. Seated at the cross-roads of dental endeavor the schools of dentistry are ideally situated to institute a program of research and teaching which could have profound and salutory effects on the character of dental practice. The method of administering such a program could be determined by the needs and facilities of the individual dental schools. One might establish its own department of psychiatry; one might work in close liaison with the psychiatric department of an associated medical school. But any serious study of emotional problems in dental medicine could result in upward spiralling standards of dental care. And such broadening of its base should establish dentistry more securely in its proper place as one of the major stress-reducing agencies in our culture.

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ASPECTOS PSYCHOLOGIC DEL STRESS: IMPLICATIONES PRO LE DENTISTERIA MODERNE

Dr. med. Albert Stunkard

SUMMARIO IN INTERLINGUA

In su labores endocrinologic Selye ha demonstrate como le concepto del stress, que es prestate ab le scientias physic, pote esser utilisate in explicar le adjustamento de organismos vivente. Le concepto del stress ha devenite un concepto central in le nove e ancora crescente campo del medicina psychosomatic. Illo ha provocate interesse in omne branca del scientias medical, proque illo pare promitter le possibilitate del disveloppamento de un theoria unificate de morbo e sanitate, i.e. del realisation de un ideal que dispareva con le medicina del ancian grecos.

Experientias in clinicas medical indica que le major difficultates in le manipulation del patientes e le major causas que preveni le medico de obtener le optime resultatos therapeutic, es a trovar in attitudes irrational del parte del patientes. Iste attitudes irrational es determinate per infelice experientas in le vitas passate del patientes. In grande mesura illos es de natura inconsciente. Ben que irrational, iste attitudes es intensemente significative. Cognoscentias del psychodynamica e de su application al manipulation de patientes permitte a nos comprender ille attitudes e modificar los de maniera a restringer le conducta antitherapeutic del patientes, augmentar le efficacia del tractamento, e—lo que non es le puncto le minus importante—augmentar le conforto del medico e le satisfaction que ille trova in su labor.

Inter omne le animales le homine se distingue per le plus longe periodo de disveloppamento ante le attingimento de su independentia individual. In plus, in su caso etiam le periodo del directe dependentia ab su parentes quanto al provision del necessitates vital es plus longe que in le caso de ulle altere animal.

Le perdita del parentes o de lor equivalente significa le morte del infante. Correspondentemente, le perdita del amor del parentes pote resultar in le morte emotional del infante. Iste facto esseva demonstrate per recente studios de infantes educate in orphanatos. Illes recipeva omne le requirimentos physic que es cognoscite al moderne scientias medical, sed illes se retirava, lor disveloppamento esseva anormalmente regressive, e illes exhibiva signos de un atrophia permanente de lor facultates intellectual e emotional. Mesmo casos de morte physic occurreva durante iste depressiones infantil; sed le aspecto miraculose de omne isto esseva que le effectos notate poteva esser revertite per simplemente restaurer le infante a un circulo familial ante que le processo pervertive esseva nimis avantiate.

Plus tarde in le curso del vita un altere periculo se presenta: le periculo del punition physic. Super le base de iste menacias al integritate de su existentia le infante apprende rapidemente per qual medios ille pote assecurar le felicitate de su parentes. Su vita integre se orienta secundo le necessitate de mantener le bon voluntate de su parentes. Omne disapprobation de lor parte deveni un signal de periculo.

In le curso del disveloppamento del infante, iste signal de periculo provoca lo que nos appella anxietate. E un grande parte del vita del individuo human es dedicate a effortios a evitar anxietate. Al mesura que le individuo se disvesti de su candor infantin, su mechanismos defensive se establi plus firmemente e le origine de periculos in le perdita de amor o in le

timor de punition deveni plus obscur. Sed a omne tempore le menacia del anxietate se presenta al individuo si tosto que ille comencia deviar ab le modo de vita que ille establiva originalmente per respecto pro le requirimentos de su parentes. Pro iste ration le incompatibilitate de nove e ancian modos de vita pote haber infelice consequentias pro le functionamento del personalitate. Le typo de conducta que esserea apte a ganiar le approbation parental in un certe situation es possibilemente un typo de conducta que es absolutemente prohibite in un altere situation. Considera, per exemplo, le caso de un homine ambitiose a grados neurotic qui soleva sentir que ille debe exceller e provar se le melior de su gruppo pro ganiar le approbation de su parentes. Sed ille etiam absorbeva le doctrina del parentes que ille debe esser dulce como un agno in omne situationes, que ille debe semper amar su vicino como se mesme. Si ille es confrontate con un situation in que le sol medio de exceller esserea le abattimento brutal de su vicino, il es ben possibile que su reaction es un intense anxietate.

Confrontate con iste anxietate ille ha a su disposition un numero de mesuras defensive. Un inter illos es si importante in le relation de medico e patiente que le presente articulo discute lo in grande detalio. Il se tracta del phenomeno cognoscite como le transferentia affective.

XIIth INTERNATIONAL DENTAL CONGRESS

The XIIth International Dental Congress of the "Federation Dentaire Internationale" (International Dental Federation) will be held in Rome, Italy from September 7th to 14th, 1957.

For further information write to: Dr. Pio Lalli, Segretario Generale del Congresso, Via Boezio 16, Rome, Italy or to: Dr. Obed H. Moen, National Treasurer of F.D.I., 6 Main Street, Watertown, Wisconsin.

SUMMATION OF STRESS LECTURES

Samuel Charles Miller, D.D.S., F.A.C.D., F.A.D.M.*

First, on the question of hypnosis being harmful. You probably read in the paper every once in a whole about a surgeon who dismembers a victim and hides him away in the sewers. He does this surgery with a beautiful and sharpened scalpel. Of course that is no indictment of surgery, as we all know. It is simply an indictment of the individual involved. Hypnosis we might say is just a tool, it is just a method of therapy. It is not intended as therapy by those who practice it in dentistry. Even though I am not part of this group, I must say that we should take an extremely fair attitude toward them. The Hypnodontic Society has been as conservative as human beings can possibly be in not trying to step on the toes of the psychiatrist, the internist or men in other fields.

Now concerning the entire approach to stress. I hope you all have open minds. Last week I was at the University of Michigan and as I started to lecture a fellow came up and handed me a card which said "My mind is made up. Don't confuse me with the facts". I think you had facts today, and my job will be only to correlate these facts and to put them in a form in which you can start thinking back and getting these a little deeper in the recesses of your minds. As the subject presents itself to us now, we find that there are many many types of stressing agents. It is not only a question of the injection of formaldehyde; it is not only a question of a contaminant of the ovarian extract, it is a question of many physical, chemical, environmental and psychologic impacts, even including the changes in climate and barometric pressures. Weather is something that has to be given a little more attention. For example, we find that the condition of so-called trench mouth, more correctly termed acute necrotizing ulcerative gingivitis, is most common in New York in the month of October (Miller, Greenhut, and Rothman). The reason it is most often seen in the month of October is probably the barometric situation and the climatic changes at that particular time. We know that at various army installations, those who do gastroenterology are advised to be prepared for more bleeding gastric ulcers before a thunderstorm, and that apparently actually does work out. They do get more bleeding ulcers coming in at that time. We know that Allison James in California has shown that the effectiveness of procaine administration is associated with weather conditions. In other words, you get more successes at certain times depending on weather conditions. These are all stressing factors which have not been given sufficient attention. One of the most common stressing agents which affects dentists is fatigue. Fatigue is a very strong stressing factor. When you get yourself to a chronic stage of tension, you get "worked up." You will then produce an adrenal exhaustion and are susceptible to almost anything that comes along. If you wanted to go through an autopsy on yourself, you would find that your adrenals are practically exhausted. There is nothing left in your adrenals to react in the beautiful way that you saw depicted on the screen this morning. It was a matter of your not being able to have that alarm reaction when you needed it because the alarm reaction is a saving thing and is something that is needed in life to remain alive. The question of how this works out of course is a matter of neural and circulatory control. In other words, the only way a stress syndrome can be produced is through some passage of impulses. Either the impulses are transmitted through the neural pathway, or they are passed through the circulation. For any impact to cause a stress reaction, a communication must exist. Therefore a chronic, fibrotic lesion is not much of a stressing factor. For example, a keloid, or an enormous change in the skin which is hypertrophy is probably not a stressing factor. If anything, it is the other way around. These are stress diseases.

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They are diseases due to over-adaptation rather than the other way around. The same naturally applies to the mouth. If the gingiva is enlarged and fibrous, no matter how unsightly it is, this is not from the physical or mechanical standpoint, a stressing factor. However the psychological impression that the patient gets *is* a stressing agent. We can see that it is the continuity or the contact of the body with the environment, the contact of the body with the lesion, that is the important thing, and that it is more severe with acute conditions because in acute conditions there is more circulatory interchange.

The question of "organ language" which was discussed so beautifully by the last speaker is something of which the dentist must be aware. If you at this time want to get up and leave while I am talking and you restrain yourself, a tension develops. If you have a neighbor sitting next to you who is a good listener, you might resolve this tension by telling him what you are thinking. But if this neighbor doesn't want to listen to you, then the tension may resolve itself in organ language. The subject must do something to show his resentment. He says "I don't want to swallow that stuff that this fellow is handing out." He gets an esophageal spasm, or the gastric hydrochloric acid will stop secreting, or he will clench his teeth, or he will contract his orbicularis oris to keep the outside from getting inside. One of the things a dentist can do when he sees these physical manifestations of emotional disturbances, is to let the patient talk. Ask the patient what is the trouble? When did this thing happen? Just about when did it start and so on. We must not be judges, just good listeners. Dr. Stunkard says that in schools of dentistry they should teach psychiatry and I believe he is right because there aren't enough psychiatrists to go around. There aren't enough psychiatrists to do the job for all the people that need emotional therapy.

Regarding the question of protein deficiency discussed by Dr. Kupperman, keep in mind that when a protein deficiency exists there is a greater tendency towards oral and periodontal disease as was shown by Wisan, Stahl and Miller at the Veterans Administration Hospital in Brooklyn. There is also a greater tendency towards improper reaction to the alarm syndrome. Many of the things such as gamma globulin, which must be produced for the protection of the individual, can not be produced as well in a protein-deficient state.

Remember that there is no one cause of anything and just as we said before when discussing the treatment of desquamative gingivitis, you can treat it by emotional support, by correction of nutritional deficiency or by giving proper instruction in brushing so that the connection with the circulation is improved. In every one of these cases, by giving enormous doses of vitamins, minerals, and other food constituents that the patient needs, and by reducing refined starches to the minimum the situation is improved. Yet, the best result comes from attention to all factors. As the study that was made by Miller, Roth and Simring showed, these people actually feel better when they take their vitamins properly and they get along very well. That brings us to the next phase and this is what we might call the iatrourgic impulse that you give to your patients. If you say when you prescribe vitamins, "This is a lot of nonsense, but I've so many samples, I can't get rid of them. Here, you take them. I might as well give them to you instead of throwing them away", the chances are that this therapy will not help the patient at all because even if it were a help, the psychological resistance that is induced will counter-act that particular type of therapy. So when you give a patient anything, whether it is a vitamin therapy, or whether it is an inlay, you yourself have to be enthused about it. I have had patients come to me, as they have probably come to you, with a beautiful inlay, and they say there is something wrong with that inlay. They can't verbalize it, but there is something wrong with the inlay. When asked what it is they might say "I don't know, but when the doctor who made it looked at the inlay he said, 'that isn't the best I can do. I could have done better'." He put some doubt into the patient's mind by his own pessimism and that's what started the whole thing going. So that iatrourgy, where you yourself are im-

pressed with the treatment, of course is extremely important. On the other hand, another word exists that is similar in sound but different in meaning. It is the word, iatrogenic. Iatrogenic diseases are very common and one of them is that which comes into dentistry through the administration of cortisone. When cortisone is administered for arthritis, or any other condition, many side effects are created in addition to the effect that the practitioner wanted to produce. Remember, one of the effects that cortisone produces is muscular relaxation. Another significant effect is osteoporosis, as a result of the negative nitrogen balance. Muscular relaxation, if it is during a period of growth, will permit overgrowth of certain parts. Keep this in mind when considering youngsters 12, 13 or 14 years of age who are in their active growth period and are taking these things. Keep in mind also that in the Journal of the A.M.A. there have been reports of fracture of the spinal column due to the administration of cortisone. Those things are extremely important. Many cases which do not reveal sufficient vertebral demineralization to be noticed readily, may still have alveolar disintegration because the alveolar bone, due to its small size and heavy stress, is the first bone to be affected seriously.

It is seen readily that the dentist must have complete knowledge of the general health of his patient. The history-taking can be handled best by the N.Y.U. Dental Medical Questionnaire developed by Miller, Blass, Witkin and Stahl. With such a form, the practitioner can obtain through questions requiring only yes and no answers, much of the information that he needs.

I would like to close my remarks with a few words about the responsibility of the dentist in relationship to the stress syndrome. Let us approach this in two ways. First, what you say to the patient is not necessarily what your patient hears. If you explain to a patient in scientific terms, that patient may not understand what you say. Just a short time ago I received a post card from one of our postgraduates who happened to be driving through Pennsylvania and he thought it was very interesting. I'm sure a hundred thousand other people thought it was very amusing to send out post cards which came from Intercourse, Pa. When the people named that town, I'm sure they didn't name it after any physiologic process; they named it after the fact that the roads crossed. To them, if you mentioned the name of their town they probably would be proud of it, whereas the man who hears it and gives it a different connotation, of course has an entirely different opinion of that particular town. So what you say to the patient is not necessarily what the patient hears. You may have the sending equipment; just make sure the patient has the mental radio to receive you. If you want to convince the patient of anything, just make sure that the convincing comes from him, not from you, because the more you try to convince, the more the patient will resist. The presentation should be something that gives the patient the idea that he thought of it himself. This is extremely important in getting a patient to take care of his obligations towards you and himself.

The second matter in relationship of the dentist with his patient is the problem of overwork on the part of the dentist. A dentist works under entirely different conditions than most medical practitioners. His patient is usually alert, his patient is active, his patient is resistant, and the dentist has much to overcome. There isn't a patient that comes into any of your offices who wouldn't rather sit you down and work on your teeth with himself in the role of the dentist. You have a great deal of persuasion, a great deal of transference from the patient to you, but what you have to be careful of is the cross-transference. When you come to the office in the morning and you are not so happy about the office, or you are not so happy about what happened at home, and you come in cranky, every patient you see during that day is going to be cranky. You may not realize why, but they are all cranky that day because they have received from you the impulse to be that way. Therefore if we can close with the understanding that this very broad subject has a very great implication in dentistry, if every dentist who is here will realize that he has a

great responsibility to his patient so that he will not cause his patient greater stress by his just clicking with his tongue when he sees a little cavity, so that he patient thinks the cavity goes down into his chest, or by having a pessimistic attitude on things when the patient needs optimism, if we will understand those things, this day will be extremely well spent.

I wish to thank Doctors Kupperman, Witten, Hinkle and Stunkard for their diligence in preparing their papers.. I wish to thank everyone in the audience for their kindness in being here and staying, just as they remained throughout the morning session without a single departure. As we close, just think whether you would have been able to have a meeting like this only 5 years ago or 10 years ago? Never, because it was not realized that there was anything to dentistry but just simple technical procedure. For that you have to thank the members of your own Academy, people like Sorrin, Blass, Rosenthal, and every single one of the others who are here and associated with the group. I thank you personally because you are the ones who are carrying dentistry ahead.

57 West 57th Street,
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SUMMATION DEL CONFERENTIAS IN RE LE CONCEPTO DEL STRESS

Dr. chir. dent. Samuel Charles Miller (F.A.C.D., F.A.D.M.)

SUMMARIO IN INTERLINGUA

Como nos vide le thema a iste tempore, il existe un grandissime numero de agentes stressorial. Il se tracta non solmente de injicer formaldehydo; il se tracta non solmente del presentia de un contaminante del extracto ovarian; il se tracta, plus tosto, de multe impactos physic, chimic, ambiental, e psychologic, non excludente le cambiamentos del climate e del pression barometric. Le conditiones meteorologic es un aspecto del question que merita un plus alte grado de attention. Per exemplo, nos trova que le infection de Vincent, que es cognoscite in anglese como *trench mouth* e que esserea designate plus correctemente como gingivitis ulcerative necrotisante, es in New York le plus frequente durante le mense de octobre (Miller, Greenhut, e Rothman). Le explication de iste facto es probabilemente a trovar in le situation barometric e le cambiamentos climatic que occurre a ille specific tempore. Nos sape que in varie establimentos militar, le specialistas gastroenterologic es notificate que ante un tempesta a tonitro illes debe esser preparate al presentation de un plus alte numero de sanguinante ulceres gastric, e il pare que isto corresponde al factos. Le gastroenterologos de facto vide plus alte numeros de sanguinante ulceres a tal tempores. Nos sape que Allison James in California ha demonstrate que le efficacia de procaina es associate con le conditiones meteorologic al tempore de su administration. In altere parolas, nostre successos a certe tempores es melior que a altere tempores e le differntia es influentiate per le conditiones meteorologic. In omne isto on debe vider le manifestationes de factores stressorial al quales on ha negligite de prestar le attention que illos merita. Un del plus commun agentes stressorial que es de importantia pro le dentista es le factor del fatiga. Si on se labora a in un stato chronic de tension, on deveni "hyperstimulate." On attinge un condition de exhaustion adrenal e deveni susceptibile a quasi non importa qual factor accidental.

Le question del linguage del organos, que esseva si bellemente discutite per le ultime orator, es un cosa con que le dentista debe esser familiar. Si vos ha le desiro de levar vos e de exir durante que io parla e si nonobstante vos restringe vos, le resultato es le disveloppamento de un tension. Si vos trova vos sedite juxta un individuo qui es un bon auditor, vos pote possibilemente resolver vostre tension per communicar a ille lo que vos pensa. Sed si vostre vicino refusa ascoltar vos, alora le tension pote resolver se in formas del linguage del organos. Vos simplemente debe facer alicun cosa pro monstrar vostre resentimento. Vos dice (subvocal-

mente), "Io non vole ingerer le stoffa idiota que ille bon homine offere a nos." Vos disveloppa un spasmo esophagee, o le acido hydrochloric de vostre stomacho cessa secerner se, o vos contrahe le pugnos o le musculo orbicular del labios pro prevenir que lo que es al exterior penetra al interior. Un del cosas que le dentista pote facer quando ille vide tal manifestationes physic de disturbationes emotional, es que ille induce le patiente a parlar. On pote poner al patiente le question, lo que es le difficultate, quando occurreva illo, ubi comenciava illo, etc. Nos non debe esser judices sed bon auditores. Dr. Stunkard assere que in scholas dental on deberea offerer cursos de psychiatria, e io crede que ille ha ration, proque il non ha satis psychiatros pro satisfacer omne requirimentos. Il non ha satis psychiatros pro assister omne le gente qui require therapia emotional.

Quanto al question de carentia de proteina que esseva presentate per Dr. Kupperman, vos debe nunquam oblidar que in casos de carentia de proteina il ha un augmentate tendentia a morbos oral e periodontal. Iste facto esseva demonstrate per Wisan, Stahl, e Miller al Hospital del Administration de Veteranos a Brooklyn. Il ha in tal casos etiam un plus forte tendentia a defective reactiones del syndrome de alarma. Multe substantias que debe esser producite pro le protection del individuo—globulina gamma per exemplo—non pote esser producite sin difficultate in un stato de carentia de proteina.

Io desira clauder mi remarcas per alicun parolas super le responsabilitate del dentista in relation al syndrome del stress. No pote considerar iste question ab duo differente punctos de vista. Primo, lo que vos dice al patiente non es necessarimento lo que le patiente audi. Si vos explica le situation in terminos scientific, il es ben possibile que le patiente non comprende lo que vos dice. In altere parolas: Vos actua le apparatura de T.S.F., sed isto non suffice si le patiente non possede le receptor pro registrar vostre emission. Si vos vole convincer le patiente que un certe assertion es correcte, il es sage convincer le patiente que le action del convincer emana ab ille e non ab vos, proque quanto plus vos effortia vos a convincer le patiente activemente, tanto plus ille va resister passivemente. Le presentation debe esser facite de maniera que le patiente crede que le idea se originava in su capite a ille. Isto es extrememente importante in connexion con le necessitate que le patiente accepta su obligationes tanto verso vos como etiam verso se mesme. Le secunde aspecto del relation inter dentista e patiente es le problema del excesso de labor del parte del dentista. Le dentista labora sub conditiones que es totalmente differente del conditiones cognoscite per altere practicantes medical. In le majoritate del casos vostre patientes es alerte, active, resistente, e vos ha multe obstaculos a superar. Il non existe un patiente qui entra in vostre sala de consulta sin le sentimento que ille prefererea excambiar su rolo pro le vostre a fin de poter placiar vos in le sede dental e comenciar laborar super vostre dentes. Vos incontra un grande fortia persuasive e un alte grado de transferentia del parte del patiente, sed vos debe esser cautissime pro evitar omne transferentia reverse. Si vos arriva le matino a vostre bureau e vos es dissatisfacite con lo que vos trova illac o vos es dissatisfacite con evenimentos in vostre familia e vos comencia vostre labor de mal humor, alora vos va trovar que omne le patientes qui se presenta a vos in le curso del die es etiam de mal humor. Forsan vos non lo comprende, sed il es un facto que illes omnes es de mal humor proque illes ha recipite ab vos le impulso de esser de mal humor.

Nos conclude con le constatation que iste largissime thema ha largissime implicationes in le campo dental. Si omne le dentistas hic reunite accepta le facto que illes ha un grande responsabilitate verso lor patientes, que illes debe tentar de causar a lor patientes un minimo de stress—de maniera que illes non clica le lingua, quandocunque illes discoperi un cavitatetta, usque le patiente conclude que le cavitate descende a in su abdomine—de maniera que illes non exhibi un attitude pessimista quando lo que le patiente require le plus urgentemente es un spirito de optimismo—si omnes hic reunite comprende iste cosas, le presente die es ben empleate.

TREATMENT OF NON-VITAL TEETH WITH INCOMPLETELY FORMED ROOTS

J. A. ENGLANDER, D.D.S., F.A.C.D.*

One of the most difficult and perplexing problems in Endodontics is that of treating pulp involved teeth whose apices have not fully closed. Most of these cases appear in children who have experienced some form of accident such as falling off a bicycle, being hit in the face during a friendly fight, or being hit while engaged in athletic play.

At the time of the accident the child may not experience any dental ache. When he is brought into the dental office at this time only palliative treatment may be advisable or possible. Reduction of lip and face swelling, if these are present, and prescription of some form of analgesic for elimination of pain or antibiotic may be indicated.

When the acute symptoms have subsided, the child should be re-examined periodically by radiograph, pulp test, percussion, and a record of subjective symptoms noted. Frequent examinations may indicate that no endodontic treatment is necessary. However, if a fracture occurs in the crown, it is advisable to protect the tooth with a temporary crown cemented on with zinc oxide and engenol.

If the pulps are exposed and respond to the vitality test, the treatment of choice at this time is pulpotomy. After treatment the tooth is placed under observation to determine the prognosis. In this discussion we are concerned with those teeth whose pulps have become devitalized through an accident.

However, it has been our experience that in the great majority of teeth traumatized in any one of the above mentioned ways (and perhaps dozens of others unmentioned) endodontics must eventually be performed in order to retain the tooth.

Neglect in periodic examination of the condition of the tooth may result in the degeneration of the pulp tissue without any subjective symptoms for many years. Then suddenly a flare-up may occur, with accompanying pain on percussion, extrusion of the involved tooth and swelling of the lip and face. Sometimes the patient's only complaint is the appearance and disappearance of a "gum boil." Upon radiographic examination a periapical area of rarefaction is observed. In either case, endodontic therapy is imperative. We must, however, pulp test the other teeth in the area to determine whether any others are involved and also in need of treatment.

The treatment may be difficult for the following reasons:

1. Child Management: The child no doubt experienced a great deal of pain and discomfort and may not have been able to carry on normal childhood activities. He may have been constantly upbraided and scolded for what he had done and being continually warned about his future activities with special emphasis on his negligence and the possibility of a recurrence of his accident. The child's fears of the treatment may be a difficult factor to overcome.

It would be superfluous to belabor the problem we may have with the parents. Allaying their concern and sometimes their hysteria is also a very important factor in treatment. Needless to add, we will make our task easier if we manage the parent with a firm but understanding hand.

2. In our operative procedures in endodontics we may find it difficult to anesthetize the tooth. We may also be confronted with the problem of using the rubber dam, which is foreign to the child. Patience and a careful explanation of what is to be done will permit us to hurdle these difficulties. A calm, honest and sincere "heart to heart" talk at the initial visit

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with the child will gain his confidence so that we may proceed without unnecessary delays and friction.

3. It may be difficult or impossible to apply the rubber dam. If this is so, we might omit its use and maintain a dry field as best we can.

4. Because the apex is wide open, the possibility of periapical irritation thru instrumentation and drugs is ever present and extreme care must be observed at each visit.

5. In those cases where the tooth is non-vital and a periapical area of rarefaction is present and may appear to involve more than one tooth (yet the approximating teeth are normal in response to the vitality test) the question of periapical surgery becomes important.

6. Filling canals of teeth with wide open apices may be very difficult. It becomes very puzzling sometimes to determine the location of the end of the root so that we may avoid overfilling and perhaps unnecessary irritation of the periodontal tissues. The root canals must be completely obliterated in length as well as in diameter, preventing subsequent contamination from the periapical tissues.

However, with all the difficulties presented in the solution of this problem, it has been found that each can be overcome with a little tact, understanding, and extreme care and experience. The main purpose of this paper is not a technical one. However, perhaps it would not be amiss to add a few observations about the operative procedures to be followed in order to obtain successful results.

Complete debridement of the canal is most important. This of course is accomplished with broaches and files with the aid of mild irrigating solutions. We must be very careful not to penetrate the apical tissues because interference with repair may occur. Careful and exact measurements of the root length will overcome this difficulty.

We have found that partial removal of the root canal contents at the first visit minimizes any flare-ups during our subsequent treatments. During visits the paper point is inserted with the antiseptic of choice short of the apical tissues to avoid irritation. Relieving the occlusion of the involved tooth if trauma is present will reduce the possibility of any additional reaction during subsequent treatments. In acute conditions the canal is left open for a few days until the acute symptoms have subsided. When the patient has become comfortable then proceed to completely seal the canal after each treatment.

The obliteration of the root canal is a difficult and tedious process. The filling of choice is gutta percha. There are no gutta percha cones commercially made that approximate any of these wide canals so that it become necessary to manufacture our own. This can be done by rolling squares of warm baseplate gutta between two glass slabs until we attain the length and diameter applicable to the respective canal. The gutta percha cone so made is then placed in position in conjunction with any of the accepted root canal cements. Condensation of the filling can thus be reduced to a minimum avoiding unnecessary irritation periapically.

Frequent radiographic examinations are made every few months in order to evaluate the progress of the treatment. In this manner we shall be aware of any changes that might need further attention such as apical curettage.

Clinical practice and evidence have demonstrated that when the response to treatment progresses satisfactorily, the canal becomes dry, the patient is comfortable and no complications are taking place during treatments. These treatments do not usually extend beyond six or seven visits and no surgery of any kind is necessary for completion and success of endodontic therapy.

The cases herewith presented will illustrate the successful outcome after endodontic therapy was completed through the root canal only. The number of visits for each tooth was approximately five.

CASE NO. 1

J. L.—Age 12. Jimmy, son of a well-known pediatrician, an only child. (Mother was a patient some years previously who refused after one attempt to have the rubber dam applied. Endodontic treatment was refused and the tooth was extracted). From our contact with Jimmy, he was all "boy" yet his mother hovered over

CASE NO. 1—J. L. AGE 12

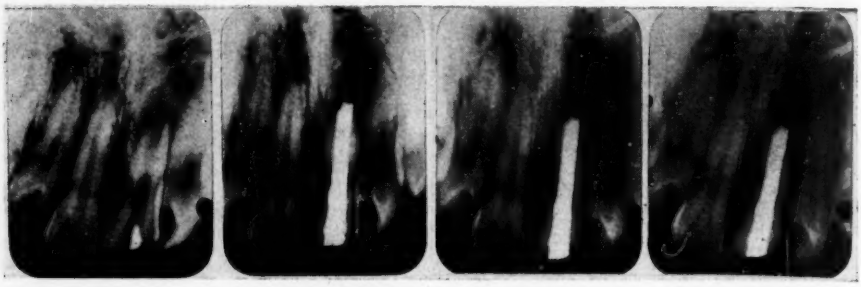

Fig. 1. Pretreatment radiograph.

Fig. 2. Canal filled.

Fig. 3. Check up, two months.

Fig. 4. Check up, seven months.

CASE NO. 2—S. F. AGE 7

Fig. 5. Pretreatment radiograph.

Fig. 6. Canal filled.

Fig. 7. Check up, seven years later.

him to his extreme discontentment. He had visited three or four other dentists each of whom refused to treat him. After only a few minutes of simple explanation and certain promises we knew we could keep, we proceeded with our treatment. The relationship was a happy one and subsequently treatment was begun and concluded in four visits without any difficulty and conflict. Radiographs demonstrate the successful outcome. This canal was filled with gutta percha and root canal sealer.

CASE NO. 2

S. F.—Age 7. Susan was a highly nervous and bright child. It was only with a great deal of persuasion that we were able to take a radiograph.. Two visits were spent in discussing the procedure of treatment. Three weeks elapsed before treatment was begun. Endodontic therapy was concluded and the tooth was periodically checked. The last radiograph demonstrates an excellent result. This canal was filled with gutta percha and root canal sealer. (Orthodontic treatment was started prior to last check-up.)

CASE NO. 3

E. B.—Age 10. At the time of our examination, September, 1949, the chief complaint was tenderness on percussion and a sense of fullness in the apical region of the upper right central and lateral incisors.

The radiograph (Fig. 10) revealed both teeth

CASE NO. 3—E. B. AGE 10

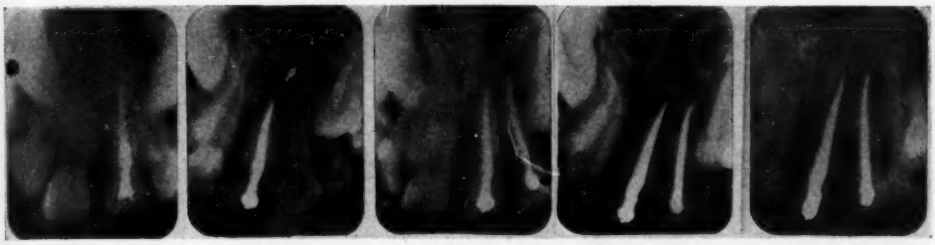

Fig. 8. Upper right central incisor with root canal filling.

Fig. 9. Radiograph six months later.

Fig. 10. Root canal fillings—central and lateral incisors.

Fig. 11. Radiograph of retreated canals.

Fig. 12. Check up, six years later.

Radiographs, Figs. 8, 9, and 10 are from other dentist.

CASE NO. 4—S. L. AGE 11

Fig. 13. Pretreatment radiograph.

Fig. 14. Canal filled.

Fig. 15. Check up, nine months later.

treated endodontically. Note underfilled canals and area of rarefaction above lateral incisor.

History disclosed the following: Elaine fell nine months previous with resultant death of pulp of central incisor. Endodontic therapy was performed (Fig. 8). Six months after accident patient presented with acute swelling and tenderness about lateral incisor (Fig. 9). After acute symptoms subsided, endodontic therapy was completed (Fig. 10). The patient was brought to our office three months later with the chief complaint mentioned above. It was decided to retreat the root canals. Endodontic therapy was completed on both teeth. (Fig. 11). The teeth were very comfortable upon removal of fillings in the root canals. Treatments followed with no complications. Fig. 12 demonstrates successful result after six years. These canals were filled with gutta percha and chlora percha.

CASE NO. 4

S. L.—Age 11. Upper right central incisor devitalized following fall from a bicycle. A dentist was consulted at time of accident and an examination revealed vitality of all anteriors. Two months later the tooth became slightly discolored and tender to percussion. A radiograph showed slight thickening of periodontal ligament and vitality test was positive. For four months patient was comfortable and did not return for periodic examinations. However, the patient became very conscious of the tooth and a typical flare-up resulted, swelling of the lip

CASE NO. 5—J. M. AGE 17

Fig. 16. Pretreatment radiograph.

Fig. 17. Canal filled.

Fig. 18. Eight months later.

Fig. 19. Twelve years later.

and extreme pain on percussing the tooth. The radiograph revealed an area of rarefaction. The treatment was completed in four visits. Note in last check-up radiograph the complete regeneration of bone. This canal was filled with gutta percha and chlora percha.

CASE NO. 5

J. M.—Age 17. Joe remembers a fall but cannot recall when. We might guess (because of the wide open apex) that it may have occurred at about the age of seven or eight. The patient never consulted a dentist about the tooth at the time of the accident and the complaint which brought him to the office was the discoloration of the tooth. The radiograph confirmed the original suspicion of a devitalized pulp. In discussing the treatment of the tooth, apical curettage was mentioned as part of the treatment. The patient shuddered at the suggestion but was willing to undertake the necessary endodontic tretaments without any surgery. He promised to come in for frequent examinations. Endodontic therapy was completed. The series of illustrations demonstrate the success of the treatment. (N. B. The gutta percha filling which extended beyond the apex apparently has had no ill effect on healing.) This canal was filled with gutta percha and chlora percha.

CASE NO. 6

B. D.—Age 8. Brenda's upper left central incisor was devitalized in "wrestling" with her father. The patient presented no subjective symptoms at the time of the examination which took place three weeks after the accident. Electric pulp test revealed no vitality. Treatment was begun and completed with uneventful recovery. This canal was filled with gutta percha and root canal sealer.

CASE NO. 6—B. D. AGE 8

Fig. 20. Canal filled.

Fig. 21. Three years later.

CASE NO. 7

J. M.—Age 12. Joyce fell off a kitchen ladder at about the age of seven. Extreme pain and facial swelling followed. She was brought to the dentist within forty-eight hours. Only palliative measures were taken. After the acute symptoms subsided (about two weeks) the

CASE NO. 7—J. M. AGE 12

Fig. 22. Pretreatment radiograph.

Fig. 23. Canal filled.

Fig. 24. Check up, one and one-half years later.

patient returned to the dentist who examined the teeth and found the upper right central incisor mobile and non-vital. In discussing the possibility of some form of treatment Joyce became hysterical and refused to let the dentist continue. Five years after the accident she became self-conscious because of the discoloration of the tooth. During all this time (five years) there was never any complaint of discomfort or pain except that she had the recurring "gum boils" which "broke" soon after forming. The recurrence of a fistula was the reason for the absence of any pain due to the pressure of the accumulation of the suppurative material. Treatment was completed in five visits. This canal was filled with gutta percha and chlora percha.

CASE NO. 8

J. L.—Age 9. John's upper right central incisor was devitalized following a fall in a school yard. Except for the fractured tooth, John experienced no discomfort or pain at any time following the accident. He was brought to the dentist when he began to complain of slight tenderness of the tooth three weeks after falling. Endodontic therapy was advised and completed with no complications. This canal was filled with gutta percha and root canal sealer.

CASE NO. 8—J. L. AGE 9

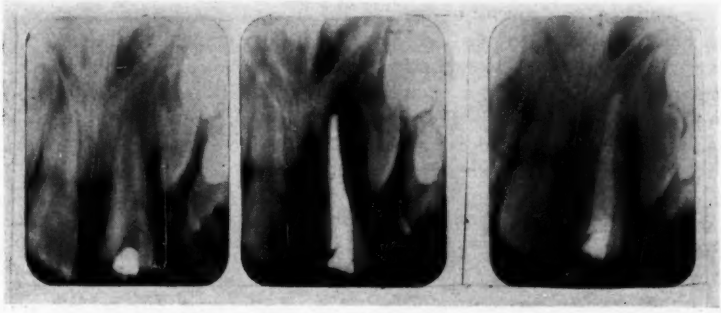

Fig. 25. Pretreatment radiograph.

Fig. 26. Canal filled.

Fig. 27. Check up, six months later.

CASE NO. 9—A. L. AGE 13

Fig. 28. Pretreatment radiograph. (8-18-49)

Fig. 29. Canals filled. (9-12-49)

Figs. 30 and 30a. Two years later. (5-29-51)

Figs. 31 and 31a. Four months after interproximal curettage. (9-12-51)

CASE NO. 9

A. L.—Age 13. In May, 1949, while riding his bicycle, Arnold was hit by a truck and was thrown against a telegraph pole. Severe swelling and contusions about the head resulted, and after palliative treatment was given, the family subsequently moved to our area. In August, 1949, he began to complain of tenderness in the upper anterior region. Pulp tests revealed that the two central incisors and the right lateral incisor were non-vital. Endodontic treatment was advised, begun and completed in three weeks. No untoward reactions followed and response to the treatments was very satisfactory. Arnold neglected to have the teeth checked. However, in May, 1951, two years after the accident he came to see me complaining that the upper right central incisor had drifted. Radiographs revealed bone rarefaction between right central and right lateral incisors (Figs. 30 and 30a.). The area was curetted and nothing done to the apical ends of the teeth. Upon histological study the diagnosis determined was an intraosseous cyst. The check-up radiograph (three months later) revealed excellent healing and the tooth moved back to its normal position (Figs. 31 and 31a.). Subsequent radiographs demonstrate complete healing. These canals were filled with gutta percha and root canal sealer (Figs. 32, 32a and 33.).

NOTES AND COMMENTS

1. Teeth whose pulps are devitalized and exhibit periapical areas of pathosis can be treated through the root canals only and regeneration of bone takes place.

2. The most important factors leading to the success of endodontic therapy are the complete and thorough debridement of the root canals and the complete obliteration of the root canals laterally and apically. While medications were used during treatments, (Formo-cresol and a mixture of formo-cresol and aureomycin), these were secondary to the other factors.

3. Mild irrigating solutions are used to aid in debriding the canals—chilorazene, zephiran chloride, 1:1000, and chlorinated soda. Caustics should not be used.

4. Root canals may be left open (without any dressing) if the patient has pain, or when

Figs. 32 and 32a. Check-up, three years after endodontics.

there is an excessive flow of exudate. When the symptoms have subsided, the root canal can then be sealed .

5. Treatments, once started, should never extend beyond two or three weeks. If response to treatments is poor (continual drainage) resort to periapical curettage in order to obtain success in retaining these teeth.

6. Every effort should be made to apply the rubber dam for it will facilitate treatment. If the rubber dam clamp has no traction on the crown, the placing of an artificial crown may help in its application.

7. Periodic examinations should be made to determine the progress of endodontic therapy.

8. Prescribing seconal ¾—1½ grains prior to treatments will reduce the apprehension of many patients.

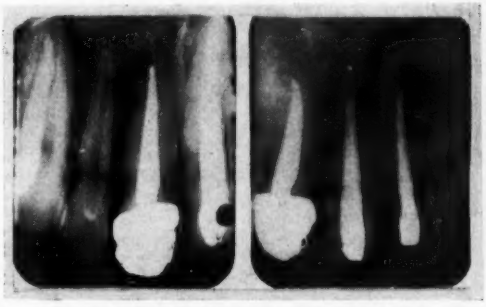

Fig. 33. Check-up, four years after endodontics.

9. Not all teeth with periapical areas of pathosis can be treated through the canal alone. However, we believe that the majority of such cases can be thus treated successfully.

5 East 57th Street, New York, N. Y.

LE TRACTAMENTO DE NON-VITAL DENTES QUE HA RADICES A FORMATION INCOMPLETE

Dr. chir. dent. J. A. Englander (F.A.C.D.)

SUMMARIO IN INTERLINGUA

Un del plus difficile e del plus perplexe problemas de endodontica es le problema del tractamento de dentes a pulpa morbide in que le apices non es completemente claudite. Le majoritate de tal casos concerne pueros e pueras qui ha suffrite le un o altere forma de accidente: un cadita ab le bicyclo, un colpo in le facie recipite in le curso de un battimento amical, un collision occurrente in un ludo athletic, etc.

ORAL MANIFESTATIO

AMERICAN ACADEMY OF DE

June 22, 23, 24, 1956 – Sher

Thursday, June 21

7-9 P.M.—Registration ..... Normandie Room

8:00 P.M.—Hospitality Party ..... Normandie Room

8:00 P.M.—Board of Trustees Meeting
Sheraton Room

Friday, June 22

9:00 A.M.—

5:00 P.M.—Registration ..... Normandie Room

Scientific Session — Founders Room

9:00 A.M.—Call to Order ..... Greetings

"ORAL MANIFESTATIONS OF ENDOCRINE AND NUTRITIONAL IMBALANCES"

9:30 A.M.—MEDICAL ASPECTS

ROBERT L. SCHAEFER, M.D., Sc.D., F.A.C.P., Consultant Endocrinologist, Grace Hospital, Herman Kiefer Hospital; Medical Consultant, St. Joseph Mercy Hospital, and Detroit Memorial Hospital; Diplomate of American Board of Internal Medicine.

10:30 A.M.—DENTAL ASPECTS

DONALD A. KERR, D.D.S., M.S., F.A.C.D., Professor of Oral Pathology and Periodontia, University of Michigan, School of Dentistry; Diplomate of American Board of Oral Pathology.

11:30 A.M.-12:00 Noon ..... Question and Answer Period

12:00—Reception ..... Normandie Room

12:30 P.M.—Luncheon ..... Crystal Ball Room

Scientific Session — Founders Room

2:00 P.M.—"ORAL MANIFESTATIONS O CIRCULATORY DISTURBANC

RAYMOND W. MONTO, M.D., F.A.C.P., Physi Charge of Hematology Division of Henry Hospital; Diplomate of American Board of nal Medicine.

3:30 P.M.—"ORAL DERMATOLOGIC AN ALLERGIC MANIFESTATION OF SYSTEMIC DISEASE"

ALICE E. PALMER, M.S., M.D., Assistant Profe Dermatology, Wayne University, College of cine; Diplomate of American Board of Derm and Syphilology.

6:30 P.M.—President's Reception Party
Normandie

7:30 P.M.—Award Dinner ..... Crystal Ball

Saturday, June 23

9:00 A.M.—

5:00 P.M.—Registration ..... Normandie

9:30 A.M.—Business Meeting ..... Founders

12:00 P.M.—Reception ..... Normandie

12:30 P.M.—Luncheon ..... Crystal Ball

JACQUES P. GRAY, M.D., Director of Special M Services of Parke Davis and Company; V Lecturer on Medical Writing, under the a of the Education Committee of the Am Medical Writers Association; Former De Public Health Medicine, University of Oki School of Medicine; Former Dean of Sch Medicine, University of Virginia, Medical C

The title of Dr. Gray's Subject is:
"ON DENTAL WRITING"

OF SYSTEMIC DISEASE

DENTISTRY AND MEDICINE — *10th Annual Convention*

Sheraton-Cadillac Hotel, Detroit, Michigan

Program

Scientific Session — Founders Room

P.M.—"ORAL RADIOLOGIC MANIFESTATIONS OF SYSTEMIC DISEASE"

ARD C. STAFNE, D.D.S., F.A.C.D., Head of Dental Section of Mayo Clinic, Rochester, Minnesota; Diplomate of American Board of Oral Surgery.

P.M.—"LABORATORY TESTS OF AID IN ORAL DIAGNOSIS"

LLIAM UMIKER, M.D., Chief of Laboratories, Veterans Administration Hospital, Ann Arbor, Michigan; Associate Professor of Pathology, University of Michigan, School of Medicine.

P.M.—Reception ..... **Book Casino**

P.M.—Dinner Dance ..... **Book Casino**

Sunday, June 24

A.M.—Discussion Breakfast ... **English Room**

Table 1 Dr. Robert Schaefer, Presiding
Table 2 Dr. Donald Kerr, Presiding
Table 3 Dr. Raymond Monto, Presiding
Table 4 Dr. Alice Palmer, Presiding
Table 5 Dr. Edward Stafne, Presiding
Table 6 Dr. William Umiker, Presiding

PANEL DISCUSSIONS

P.M.—Award Luncheon .. **Crystal Ball Room**

P.M.—Trustees Meeting
Pan American Room

Ladies' Program

Thursday, June 21

7:00 P.M.—Registration ..... **Normandie Room**

8-11 P.M.—Hospitality Party .. **Normandie Room**

Friday, June 22

9:30 A.M.—Ford Motor Co. ..... **Bus Tour**

12:30 P.M.—Luncheon ..... **Dearborn Inn**

2:00 P.M.—Greenfield Village ..... **Bus Tour**

6:30 P.M.—President's Reception
Normandie Room

7:30 P.M.—Award Dinner ..... **Crystal Ball Room**

Saturday, June 23

9:30 A.M.—Visit to Northland Shopping Center
Bus Tour

1:00 P.M.—Luncheon ..... **Devon Gables**

2-4 P.M.—Visit to Cranbrook Gardens, Museum of Science and Art Galleries
Bus Tour

7:00 P.M.—Reception ..... **Book Casino**

8:00 P.M.—Dinner Dance ..... **Book Casino**

Sunday, June 24

1:00 P.M.—Award Luncheon .. **Crystal Ball Room**

Il es possibile que al tempore del accidente le victima suffre nulle odontalgia. Del altere latere, si ille es presentate a iste tempore al consultation dental, nullo plus que un tractamento palliative es recommendabile o mesmo possibile. Le reduction del tumescentia de labios e facie (si un tal es presente) non es contra-indicate. Le mesmo vale pro le prescription de un o un altere agente analgesic o de un antibiotico.

Quando le symptomas acute ha retrogradite, le juvene patiente deberea esser re-examinate periodicamente per radiographia, test de pulpa, e percussion. Etiam un protocollo del symptomas subjective debe esser mantenite. Le resultato de frequente examines pote esser le conclusion que nulle tractamento endodontic es requirite. Del altere latere, si un fractura es constatate, il es recommendabile proteger le dente per un corona temporari que es attachate per un cimento de oxydo de zinc e eugenol.

Si le pulpa es exponite e responde al test de vitalitate, le therapia de election es pulpotomia. Post le tractamento le dente es tenite sub observation pro determinar le prognose.

Secundo nostre experientias, le grande majoritate del traumatisationes suffrite in un del supra-mentionate manieras (e possibilemente in dozenas de altere non-mentionate manieras) resulta tosto o tarde in le necessitate de interventiones endodontic pro salvar le dente involvite.

Le non-observation del examine periodic del condition de tal dentes pote resultar in le degeneration histologic del pulpa sin que ulle symptomas subjective es presente in le curso de multe annos. Postea il pote haber un attacco subitanee con dolores sub percussion, extrusion del dente involvite, e tumefaction del labios e del facie.

A vices le sol molestia reportate per le patiente es le apparition e disparition de un furunculo gingival. Le examine radiographic revela un area periapical de rarefaction. In omne tal casos un therapia endodontic es urgente. Al mesme tempore il es indispensabile subjicer le altere dentes del mesme area al test de pulpa pro determinar si illos es etiam afficite e etiam require le mesme tractamento.

Le tractamento mesme pote devenir difficile pro un o plure del sequente rationes: (1) conducta del patiente, (2) difficultate de anesthesiar le dente, (3) difficultate de applicar le barrage de cauchu, (4) possibilitate de irritation periapical, (5) question de irritation periapical, e (6) difficultate de plenar canales.

AN AID TO LAITY EDUCATION ON PERIODONTAL DISEASE

SAMUEL CHARLES MILLER, D.D.S., F.A.C.D., F.A.D.M.*
J. LEWIS BLASS, Ph.G., D.D.S., F.A.C.D., F.A.D.M.** and
I. MICHAEL HARRIS, D.D.S.***

During the past decade, the laity has had an accelerated educational program on dental caries. Actually, although caries causes the loss of a large number of teeth, the greatest offender is periodontal disease. Not only does the latter play a vital role in the breakdown of the support of the masticatory apparatus, but it also has an important influence on the general health of the individual. In spite of this, very little has been done to educate the public on periodontal diseases in contrast with the large amount of education on caries.

Fortunately, present-day knowledge of the causes and the treatment of periodontal diseases permits their prevention and successful treatment unless neglect makes it impossible to save some teeth. Only through an intensive educational program for early detection through diagnosis can this major cause of the loss of teeth be handled.

A questionnaire was prepared to be used in the dental office or at a meeting with laity prior to a discussion or lecture on some phase of periodontia. It gives the dentist a suitable starting point with the patient or the group permitting them to crystallize their thoughts on:

1) Basic ideas of periodontal diseases.
2) Previous experiences in dental care.
3) Knowledge of possible correction of periodontal diseases.

The questionnaire fills a gap that exists in the available educational material. It sets the stage, as it were, by preparing the audience to think about the content of the discussion to follow. For example, one title might be, "The Two Enemies of Dental Health—Caries and Periodontal Diseases."

The development of the talk on periodontal disease becomes a natural sequence after the use of the questionnaire. It might start after the questionnaire is completed and questions elicited from the audience. Previous experience of the speaker would indicate whether or not the questionnaire would be answered in the natural development of the talk. Otherwise specific questions could be answered before the conclusion of the talk.

The questionnaire consists of two short series of interrogations to test the knowledge of the individual on the topic of periodontal diseases, to inform him, correct his misconceptions, and remove any prejudices on the subject. The first series of questions has obvious answers, makes the individual aware of his own needs, and starts him thinking on the subject of periodontal diseases. The second series of questions serves to motivate the individual to seek dental service.

57 West 57th Street, New York 19, N. Y.
4 East 41st Street, New York 17, N. Y.
555 Cedar Lane, Teaneck, N. J.

*Professor and Chairman of the Department of Periodontia and Oral Medicine, New York University College of Dentistry.
**Associate Professor of Periodontia and Oral Medicine and Lecturer on Practice Management, New York University College of Dentistry.
***Instructor, Department of Periodontia and Oral Medicine, New York University College of Dentistry.
The authors are indebted to the following for their help in the preparation of this questionnaire: Harold K. Addelston, D.D.S., Irving Shapiro, M.S., Ph.D., Henry C. Sandler, D.D.S., M.S.P.H., and J. W. Wisan, D.D.S., M.S.P.H.

WHAT DO YOU KNOW ABOUT GUM HEALTH?*

Please check each answer

1. Do you expect to keep your own teeth the rest of your life? Yes..... No.....
2. Most teeth are lost because of: (check one or more)
   Heredity..... Tooth Decay..... Accident.....
   Poor Nutrition..... Gum Disease..... Age.....
3. Check any of the following which might show in gum disease:
   Redness..... Pain..... Loose Teeth..... Pink Gums.....
   Swelling..... Recession..... Abscesses..... Pus Flow.....
4. Gum disease can start at the following age: (Check one or more)
   Childhood..... Adolescence..... Young Adulthood..... Middle Age.....
5. Which of the following may cause gum disease? (Check one or more)
   Accumulations on teeth..... .....
   Teeth which are lost and not replaced ....
   Conditions elsewhere in the body..... .....
   Toothbrushing with too much pressure ....
   An uneven bite ....
6. Could a pain in the knee be caused by infection in the gums? Yes..... No.....
7. Is the health of the gums affected by too many starches, sweets, or soft foods?
   Yes..... No.....
8. Does it make any difference to gum health how you brush your teeth?
   Yes..... No.....

WHAT DO YOU DO ABOUT GUM HEALTH?

1. Have you checked your diet against what is recommended by health workers?
   Yes..... No.....
2. Have you ever been taught how to brush your teeth? Yes..... No.....
3. Do you and your children visit your dentist at least twice a year?
   Yes..... No.....
4. Has your dentist remarked about your gums in examining you? Yes..... No.....
5. Do you feel that your gums are in perfect health? Yes..... No.....
6. What are you doing to protect yourself against gum disease? .....
   .....
   .....
7. Do you care to write or comment on these questions? .....
   .....
   .....
8. Note other questions you want answered .....
   .....

* From the Department of Periodontia and Oral Medicine, New York University College of Dentistry.

UN AUXILIO AL EDUCATION DE LAICOS IN RE MORBO PERIODONTAL

Dr. Chir. dent. Samuel Charles Miller (F.A.C.D., F.A.D.M.), Dr. chir. dent J. Lewis Blass (Ph.G., F.A.C.D., F.A.D.M.), e Dr. chir. dent. I. Michael Harris

SUMMARIO IN INTERLINGUA

Iste questionario esseva preparate pro usos in le sala de consulta dental o in altere contactos con laicos ante un discussion o un discurso in re le un o le altere aspecto del periodontia. Le questionario representa pro le dentista un utile puncto de partita in su discussiones con patientes o altere laicos. Illo promove le crystallisation del pensar del laico in re (1) le factor fundamental in le dominio del morbos periodontal, (2) su previe experientias in le campo del hygiene dental, e (3) le formas possibile del correction de morbos periodontal.

Le questionario plena un lacuna in le disponibile materiales educational. Illo prepara le laicos a subsequente discussiones per concentrar lor pensar super le questiones que va esser sublevate.

Le disveloppamento de un discurso in re morbos periodontal es simple e natural si on se ha previemente servite del questionario. Le discurso pote esser comenciate post que le questionario es completate e ha evocate questiones ab le auditorio. Le dentista qui presenta le discurso sape ab previe experientias qual questiones va trovar lor responsa in le curso natural de su explicationes. Le remanente questiones pote esser discutite al fin del discurso proprie.

EFFECT OF ENZYMATIC DEBRIDEMENT UPON GINGIVAL INFLAMMATION

SANFORD C. FRUMKER, D.D.S.*

REVIEW OF THE LITERATURE

Trypsin is an enzyme produced by the mammalian pancreas. In its highly purified crystalline form it has a rapid proteolytic effect. It is of major therapeutic advantage because it will lyse only dead tissue, and will not attack a living cell.[14] The rapidity and effectiveness of its action is due to the fact that it acts directly and does not rely on any intermediate. For the same reason it can be applied many times without losing its potency.[13]

Trypsin is innocous to living tissues because their serums contain both a specific trypsin inhibitor and several nonspecific inhibitory substances which act against proteolysis.[3] The trypsin rapidly liquifies fibrin, thick pus and necrotic proteins,[13] which are reduced to peptides and individual amino acids.[11] Trypsin itself is not bactericidal, but it does result in a lowered bactericidal count, probably due to denying the bacteria the culture media needed for growth.[14]

When given intravenously and rapidly, trypsin produces massive intravascular clotting. When administered slowly it has an anticoagulant effect,[15] and large amounts given slowly prolong the prothrombin, calcium chloride, and clotting times indefinitely. In large enough quantities it will eliminate the blood fibrinogen.[16]

Innerfield and others[8, 9] claim parenteral trypsin has an intravascular thrombolytic effect and a specific anti-inflammatory action. In Hardy's[5] work, however, parenterally administered trypsin had no lytic effect on vein thrombi in dogs, and no anti-inflammatory effect on rats where bilateral adrenalectomy had been performed to prevent endogenous cortisone production.

Clinically, there have been virtually no reports of antigenicity, and there have been glowing reports of successful reduction of inflammation.[4, 6, 7] In dental usage, trypsin has been successfully used in endodontics.[1] Kutscher[10] reported poor results, but Olinger[12] reported the successful use of trypsin with a number of periodontal diseases.

MATERIALS AND METHOD

The trypsin used was Tryptar, the Armour brand of crystalline trypsin, and it was supplied by the Armour Laboratories. Tryptar exhibits its greatest activity at a pH of 7. It is supplied in two bottles, one containing the Tryptar, the other the diluent (Sorensen's Phosphate Buffered Solution which has a pH of 7.1). The dry powder is stable indefinitely, but when placed in its diluent it loses 75% of its proteolytic activity in 3 hours, and therefore must be mixed fresh before each usage.

Olinger determined that the most efficacious method of application for dental usage is by wet dressing, and the optimum concentration is 125,000 Armour Units in 0.4 cc. of diluent. This method and this concentration were used.

In all patients the lower arch was used. The area was isolated and a dry pledget of cotton placed between the lower central incisors. Pledgets of cotton saturated with Tryptar were forced with pressure into the three adjacent interproximals to the right. The three interproximals to the left were packed with pledgets containing only the diluent.

This was continued once a day for five days. The packs were left in place 20 minutes at each application. After the fifth application a gingivectomy was done, the tissue fixed in formalin, stained with H. and E., and serial sections made. Kodachrome pictures were taken before the experiment began, during, and again after the five treatments.

* Instructor in Periodontia at Western Reserve University Dental School.

Four patients were used. All radiographically exhibited bone loss, were white, and in good health. Patient No. 1 was a female, age 38; No. 2 a male, 46; No. 3 a male, 26; and No. 4 a male, 42. Any sulcus over 2.5mm. was considered a pocket. Patients Nos. 1 and 2 had 3 to 7mm. pockets, large amounts of calculus, and severe gingival inflammation with the attached gingiva showing no stippling. Patient No. 3 had a small amount of calculus, pockets 3 to 4 mm., and some stippling was present in the attached gingiva. Patient No. 4 had a thorough prophylaxis one month prior, but had no instruction in home care and as a result had debris around the teeth. The pockets were 2.5 to 3.0 mm., the inflammation was entirely marginal, and the attached gingiva was stippled.

RESULTS

1. Upon removal of the cotton pledgets, there was a slow hemorrhage from the gingiva on the Tryptar side, but none on the control side.

2. On the control side the gingiva quickly returned to its original height. On the Tryptar side it remained depressed.

3. The Tryptar side gave a "cleaner" picture. Granulation tissue and subgingival calculus were clearly visible.

4. Grossly, and as checked with the Kodachromes, in patients Nos. 1 and 2, on the Tryptar side there was only a very slight reduction in the inflammation. In patient No. 3, the Tryptar side was improved and there was a return to normal stippling of the attached gingiva on this side. In patient No. 4, the small gingival pockets on the Tryptar side were eliminated.

5. Histologically, in patients Nos. 1 and 2, there were large areas of round cell infiltration, ulceration, and deep epithelial ingrowths into the gingival corium. No difference between the two sides could be seen. Patient No. 3 presented a picture of much less inflammation, but again no difference between the two sides could be seen. Patient No. 4 had normal crevicular epithelium, but there was a small amount of edema and round cell infiltration in the gingival corium. Here, the Tryptar side presented a picture of less inflammation than the control side.

DISCUSSION

With the small number of areas used, any generalization drawn must be guarded. However, certain definite indications were evident. The Tryptar itself has an astringent action upon inflamed gingiva, and topically applied, is an anti-coagulant.

The Tryptar does an excellent debridement of the soft white deposits. Since these deposits are composed mainly of desquamated epithelial cells, cellular debris, and microorganisms living in this culture media,[2] such results could be expected. However, such debridement in no way appears superior to that accomplished by a thorough mechanical cleaning.

What is pointed out is that soft debris causes an inflammation in both the marginal and the attached gingiva, and that by removal of this debris the inflammation can be resolved. Also, as a cause of inflammation, calculus is a much more potent agent than debris.

The histologic results were inconclusive. As expected, patients Nos. 1 and 2 showed no improvement. In patient No. 4, the experimental side showed less inflammation, but in patient No. 3 where this would also be expected, both sides were equal. Since, histologically, there can be no before and after sections, one cannot be sure there was no improvement in patient No. 3, or that the apparent improvement in patient No. 4 was not a difference previously existent.

Therapeutically, the astringent effect of Tryptar would be an aid in scaling, but even better astringents are available. The area in which Tryptar would be of aid is in those cases where, due to pain, a local antibiotic pack must be applied. The prior use of Tryptar would probably result in a more rapid and efficient alleviation.

SUMMARY

Topically applied Tryptar did an excellent debridement of the soft white debris around various pockets. This resulted in a reduction

of inflammation both in the attached and the marginal gingiva, but where much calculus was present the reduction was insignificant. While this helps to point out the relative roles and importance of calculus and debris in regards to periodontal disease, it does not offer us an agent for treating the disease that is in any way superior to the digital and mechanical methods now in use.

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LE EFFECTO DE DISBRIDAMENTO ENZYMATIC SUPER INFLAMMATION GINGIVAL

Dr. chir. dent. Sanford C. Frumker

SUMMARIO IN INTERLINGUA

Trypsina es un enzyma producite per le pancreas de mammales. Illo es de importantia medical proque illo effectua un lyse selective de histos morte e non affice cellulas vive. Ha essite publicate multe assertiones in re le utilitate de trypsina, e Olinger ha usate Tryptar con successo in multe morbos periodontal.

Le presente studio es concernite con quatro patientes. Duo habeva forte depositos de calculo e sever inflammation del gingiva tanto marginal como etiam attachate. Le tertie habeva minor quantitates de calculo e solmente un perdita partial del marmoration in le gingiva attachate. Le quarte habeva solmente fragmentos circa le dentes e un resultante inflammation marginal.

Tryptar esseva applicate un vice per die durante cinque dies al quadrante dextero-inferior de omne le quatro patientes. Le diluente esseva usate como controlo al altere latere. Le resultatos esseva observate grossiermente per medio de photographias (Kodachrome), e post le ultime application un gingivectomia esseva executate e le specimens esseva studiate histologicamente.

Le resultatos monstrava que Tryptar removeva le fragmentos circa le dentes e in le saccos e que isto reduceva le inflammation in le gingiva tanto marginal como etiam attachate. Assi se demonstrava le importantia del fragmentos como causa del inflammation. In le casos con grande quantitates de calculo, le reduction del inflammation non esseva significative. Isto demonstrava que calculo es le plus potente causa del inflammation. In le forma de application usate in iste serie, Tryptar ageva etiam como anticoagulante e astringente.

Ben que iste experimento demonstrava le rolo comparative e le importantia relative de fragmentos e calculo como factores etiologic in morbo periodontal, le experimento non resultava in un addition al armamentario disponibile a nos in combatter le morbo, proque le disbridamento es melio e plus rapidemente effectuabile per le methodos digital e mechanic nunc in uso.

FIRST DENTAL EDUCATION WORKSHOP

Sponsored by the

HENRY SPENADEL FUND FOR ADVANCEMENT OF EDUCATION IN DENTISTRY
FIRST DISTRICT DENTAL SOCIETY, TRUSTEE AND ADMINISTRATOR

Friday, April 20, 1956, Hotel Statler, New York City

Registration: 9:00-9:30 A.M.

THEME

PROFESSIONAL EDUCATION OF DENTISTS FOR TOMORROW

Address of Welcome: Michael S. Burnham, D.D.S.
Objectives of Workshop: Alfred J. Asgis, D.D.S., Ph.D.

Morning Panel: 10:00-11:50 A.M.—A Philosophy of Dental Education

Presiding Chairman: Raymond J. Nagle, D.M.D.

Introductory Remarks—Percy T. Phillips, D.D.S.

Some Problems in Education for the Professions—with Applications to Dentistry. Alonzo F. Myers, Ph.D.
The Role of Medical Science in Dental Education. Sidney P. Schwartz, M.D.
Biologic and Social Foundations of Dentistry as a Basis of Dental Education Programs. Joseph J. Obst, M.A., D.D.S.

General Discussion and Audience Participation

Afternoon Panel: 1:00-3:00 P.M.—Promotion of Oral-Health—The Aim of Dental Education

Presiding Chairman: Maurice J. Hickey, D.M.D., M.D.

Co-chairman: Edward V. Zagarelli, D.D.S.

Introductory Remarks—Ormonde J. McCormack, D.D.S.

The Role of the Basic Sciences in Dental Education. Erwin DiCyan, Ph.D.
Prevention and Oral Therapeutics in Dental Education. Saul Schluger, D.D.S.
Research in Dental Education. H. Trendley Dean, D.D.S.

General Discussion and Audience Participation

Forum Discussion: 3:00-4:00 P.M.

Presiding Chairman: Walter A. Wilson, D.D.S.

INTERLINGUA — TOOL OF INTERNATIONAL COMMUNICATION

ALEXANDER GODE, Ph.D.*

It is the purpose of this article to state the case for Interlingua, which is a planned auxiliary language. Let me emphasize right off that in our view the demonstration of the international usefulness of Interlingua does not require an introductory demonstration of the inadequacy of the other tools of international communication which are now available.

Our interest in Interlingua is motivated exclusively by the fact that in certain areas it can make and does make unique contributions toward the elimination of language-barrier difficulties. That English and other languages can also make such contributions does not reduce the significance of the contribution of Interlingua.

Interlingua makes its bid as a useful tool in international communication with no implication of the exclusiveness of its claims. It has no ambition whatever to crowd out English, Spanish, French, German, Russian, or Japanese, in their several uses in international intercourse. Actually it is enhanced in its usefulness by the increase we may expect to occur in the coming decades in all parts of the civilized world in the study of English and other national languages as secondary tools to be tried in situations where the native language cannot function.

INTERNATIONAL ENGLISH

The qualifications of Interlingua to serve in international communication can be most readily appreciated in the light of an analysis of the traits which seem to serve various national languages in good stead when they are called upon to function as media of intercourse between individuals of different native tongues. It seems permissible, however, to restrict such an analysis to English in particular, because at the present time English outranks all other national languages in international significance.

It has become the fashion to accuse English of being much too difficult a language to assume the functions of a world-wide secondary language. One fact adduced in support of this contention is the enormous and ever-growing terminologic wealth which is so strikingly characteristic of English. But actually, the resulting expressive versatility of English is one of its most important assets. While no philologist can admit that there is a standard by which one language can be called superior to another in an absolute sense, it certainly is true that no other language approximates English in the apparent ease with which it solves all terminologic problems presented to it in this age of expanding inventiveness of man in the realms of things and ideas. Two traits of English explain this fact: its marvelous freedom in the formation of new terms and its tendency to offer indiscriminate hospitality to new terms coming in from abroad.

These considerations are meant to imply on the one hand that it is ill-advised to attempt to simplify English or to reduce its vocabulary in order to make it more suitable for international intercourse and on the other that any language functioning on a global scale must be possessed of the same degree of neologistic versatility that characterizes English.

SPELLING AND SPELLING REFORM

Another and possibly still more striking paradox is our contention that what is so often referred to as the chaotic orthography of English is not a handicap but an indispensable asset of our language as a medium of civilized international intercourse. It is customary to illustrate the "absurdity" of English spelling by pointing out such things as the fact that the four words thought, drought, enough, and through require four different pronunciations for the identical group of letters o-u-g-h. But oddities like these are really little more than amusing details. They do not loom large compared with the fact that

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a thoroughgoing spelling reform would wreak havoc with our orderly patterns of word derivation. In a system of phonetic spelling, the identical portions of words like inspire and inspiration, for instance, would have to be spelled differently, and the spelling of Christmas could no longer suggest that the word has anything to do with Christ.

Yet such disasters are negligible in comparison with the fact that English in phonetic spelling would be largely cut off from its neighbor languages. A single example may suffice to illustrate this point and to lead on to its significance for our central topic.

We have in the English vocabulary the "absurdly" spelled item 'pyorrhea.' The French call this same unpleasant entity 'pyorrhée.' If they know the term and the thing in French, they understand English 'pyorrhea.' The corresponding assertion holds true for the Germans who recognize English 'pyorrhea' on the basis of their own 'pyorrhöe.' [For completeness' sake it is to be added that in popular usage the Germans designate pyorrhea very descriptively as 'mouth rot.']

In a write-as-you-pronounce orthography the English-speaking nations would replace 'pyorrhea' by something like 'paieria.' Following similar principles the French would adopt 'pioré' and the Germans 'püoröe.' Instead of English-French-German 'pyorrhea-pyorrhé-pyorrhöe,' differentiated as English, French, or German only by the endings, we would have 'paieria-pioré-püoröe,' which would indeed be recognizable in one another by only a first-rate linguistic detective.

Yet the risk inherent in national spelling reforms that they tend to isolate individual languages from their neighbors is emphasized in this context only because it highlights the fact that, as things now stand, the major languages of the Western world are by no means isolated from one another but do have a great deal in common. And this obliges us to look at the question from a somewhat different angle.

INTERNATIONAL WORDS

Where, we must ask, did English and its neighbor languages get words like 'pyorrhea' and 'vitamin, motor, statistics, cardiology, communism, vaccination, gasoline, poliomyelitis,' and thousands of others which appear in a considerable number of languages in forms that differ only in insignificant externals? English did not get them from German or French. Those two languages did not get them from one another or from English. And all of the other languages that also have them cannot claim that they got them from a specific source.

It is customary to call these words international words. Actually their existence "among the nations" is not the most fitting description. "Among the languages" would be better. We would then call them interlingual terms. They are not of monolingual but of interlingual origin, and in their totality they imply the existence of, and constitute, an interlanguage or interlingua.

It would now be possible to state that English is so eminently qualified to serve as an international language because it is so extremely rich in interlingual terms. If French and Spanish and German are likewise efficient operators in the field of international communication, in their case too we must observe that they owe their efficacy in that field to a large extent to their stock of interlingual terms.

If we write an English text for international consumption, we will be well advised to draw as heavily as possible on the available interlingual stock. The more we do so, the more easily will our foreign readers be able to follow, for the interlingual terms are by definition part and parcel of their own languages too. They did not learn them in their specific studies of English but simply "knew them all along."

INTERLINGUA

The total body of interlingual words constitutes not only an interlingua but also what we have come to call *the* Interlingua. By definition then, Interlingua is a supranational vocabulary which existed a long time before the auxiliary-language system now known by that name was codified and made available for practical use.

On this basis we might formulate that the portion of English, or of any other national language, which is of special significance in the use of that language in international communication, i.e. the portion consisting of interlingual terms, is borrowed from Interlingua.

It will readily be seen that this formulation is more satisfying than the traditional assertion that the majority of the so-called international words are taken from Greek or Latin. Most of these terms were not known to the Greeks and the Romans, and many of them would not be understood by them if we had a way of consulting them in this matter.

LINGUISTIC AND CULTURAL COMMUNITIES

But the question remains to be answered, how it is possible that a German, a Spaniard, a Frenchman, a Dutchman, a Swede can nowadays form in his own native language new terms which are not at all peculiar to that language but belong immediately to the interlingual stock and can function almost unchanged in a variety of other languages as well. The answer can only be that at least part of the tradition of each of the languages in which this phenomenon occurs is not its idiosyncratic property but belongs to a more inclusive linguistic community.

At this point we must emphasize the observation that no linguistic community is imaginable that is not at the same time a cultural community. The supranational linguistic community referred to in the present context is identical with the cultural community of the Occident. It is the Western world, the Latin or Greco-Latin tradition, or, if we wish, the civilization of Judaeo-Christian-Mediterranean individualism.

LATIN AND ITS SUCCESSORS

At one time in history the peoples belonging to this community used in actual fact one common language in all cultural intercourse. This language was a living Latin which acquired in the wake of the Renaissance the ability to draw almost unrestrainedly also on the word material of Greek. When the individual vernaculars spoken throughout the vast homogeneous cultural realm of Latin dethroned this regal tongue and established themselves as so many regional Diadochi, they could not and doubtless would not deny their common descent. French, Spanish, English, Italian, German, etc. became all fully independent full-fledged cultural languages; but with part of their substance they remained Latin.*

This outline permits another criticism of the loosely used phrase "international term." Actually there is nothing truly international about the expressions that are so designated. They are Occidental, they are fashioned in the common Western tradition, and if the empire of Charlemagne had fulfilled its destiny by surviving as the political organization corresponding to that tradition, its peoples would now constitute one nation whose national possessions would include a vocabulary of what we now refer to so thoughtlessly as "international words."

If for a moment we may dream about the one Western nation, a dream dear to all of us as a cultural reality even though our individualism may induce us to reject it as a political nightmare, we will recognize Interlingua, or if we prefer, the interlingual stock of words, as its national language with the corrollary that our various Occidental vernaculars constitute but so many regional dialects of it.

It is possible to imagine that in the course of centuries the common cultural and linguistic ties of the nations and languages of the Occident would have grown progressively vaguer. The opposite is what actually occurred.

It was the common fate of the peoples of the Occident to give to the world the dynamic curse and blessing of what we know today as science and technology. This is an historical fact: science and technology are by origin neither nationally restricted nor universally unrestricted. They are Occidental. And to their

* In what sense German and other Teutonic or otherwise non-Romance languages of Europe could have *remained* Latin without actually having sprung from it, is a cultural topic of independent interest. Its scope may be inferred from an allusion to the tremendous number of Latin loan translations in the Teutonic languages, i.e. words of the type of German *verbinden* in the sense of 'to oblige'—a term which looks Teutonic enough but which actually is nothing but a rendering of Latin *ligare* (=German *binden* 'to bind') preceded by the prefix *ver-* in correspondence to Latin *ob-*.

impact we owe to a large extent the modern re-affirmation of the cultural homogeneity of the Western world.

That is the reason science and technology have satisfied their tremendous terminologic needs by drawing on the common linguistic tradition of the Occident as a whole. In the process the stock of interlingual terms grew by leaps and bounds. It is doubtful whether, without this historical development, Interlingua would be today either possible or needed. It would be more probably a curious idiom of restrictedly Occidental usefulness.

But when the Occident gave the world the dynamic entities of science and technology, they were of necessity accepted everywhere together with the corresponding concepts and in many instances also the corresponding words. The interlingual vocabulary, with its clearly Occidental provenance, assumed thus as universal a validity as modern scientific thought itself.

STRUCTURE OF INTERLINGUA

Interlingua, as it is now being used in international communication, amounts to a systematic exploitation of the existing interlingual (or international) word material. Thus it is clearly a planned auxiliary language, and yet it is not possible to claim that it was constructed. It was visualized as a historical reality, and the laboratory work which led to its eventual formulation consisted in objective research in comparative and historical linguistics. The problem was to work out criteria for the collection and standardization of verbal material already known, in the guise of multiple national variants, to a large segment of mankind. The ideal to be realized was a pan-Occidental and, beyond that, a pan-scientific language immediately comprehensible to anyone conversant, either through his native language or by virtue of his linguistic training, with at least part of the "international" vocabulary.

PROCEDURES OF EXTRACTION

The procedures used may be summarized as follows: Concepts to be represented by Interlingua words should be common to the Occidental languages. A concept like that expressed in English by 'akimbo' and occurring in no other language can be expressed in Interlingua, as in all other languages, only by a circumlocution. Such concepts are rare.

Pan-Occidental concepts are represented by pan-Occidental forms. The series of languages to be investigated may be restricted to English, French, Italian, and Spanish-Portuguese since no pan-Occidental word material can be missing in them. If a concept or a word form is not encountered in one of the four language units listed, this may be considered an historical accident and may be disregarded, provided the gap can be filled by another major Occidental language such as German.

When a word is pan-Occidental, the form to be chosen for it in Interlingua must represent the basis from which all its monolingual correspondences can be evolved. For instance, English 'peace,' as well as its French correspondence 'paix,' its Italian correspondence 'pace,' and its Spanish correspondence 'paz,' can be understood as a historical development of the form 'pace.' This is the Interlingua form. In the case of pan-Occidental nouns of Latin origin, the Interlingua form happens to look very often like the Latin ablative.

When a given word in one of the contributing languages differs in form from its re-appearance in its own derivatives, it is the version of the derivative that enters into the elaboration of the Interlingua form. For instance, the French form 'vie' contributes through its derivative 'vital' to the conclusion that the Interlingua form is 'vita.' This form is likewise supported by Spanish 'vida' through its derivative 'vital.'

As pan-Occidental occurrence sanctions the use of whole words in Interlingua, so it sanctions also the use of word-formation elements in that language. The form in which these elements appear in Interlingua is based on the corresponding forms in the contributing languages, exactly as in the case of complete words. For instance, the English prefixes and suffixes 're-, sub-, counter-, -al, -ism, -ation, -ics, -logy' appear in Interlingua as 're-, sub-, contra-, -al, -ismo, -ation, -ica, -logia.'

In tracing the existence of a particular word

in one of the contributing languages, it is counted as present if it is encountered either as such or in a derivative of the kind that occurs also in Interlingua. Thus the notion 'life' is represented in English not only by the word 'life' itself but also by the root 'vit-' as it appears in 'vital.' Or again, the Interlingua word 'currer' (to run) is supported by the English form 'curr-' as it appears in the derivative 'current.'

FORMATION OF NEW WORDS

The formation of new words proceeds in Interlingua as it does in the individual Occidental languages. If I want to form the English neologism 'dentistoid,' I can do so because 'dentist' is a familiar word and '-oid' a familiar suffix. The corresponding Interlingua elements are 'dentista' and '-oide' and the corresponding neologism is 'dentistoide.'

Compounds of the type 'toothache' are Teutonic and not pan-Occidental. They are replaced in Interlingua by the analytical equivalent 'ache of tooth.' This type of construction is pan-Occidental as witness English examples like 'journal of dentistry.' The Interlingua equivalent of toothache is 'dolor de dente.'

If a compound of the type just mentioned happens to acquire pan-Occidental currency, it is automatically accepted as good Interlingua. An example is the formation 'gram-negative.' This type of formation is impossible in the romance languages and hence cannot be pan-Occidental. But it happens to be a fact that French has adopted 'gram-négatif' and Spanish 'gram-negativo.' Hence Interlingua must have 'gram-negative.'

Compounds of the type 'odontalgia' are pan-Occidental and consequently good Interlingua. In this particular instance the Interlingua form coincides completely with its English equivalent.

The derivation and compounding of new words is restricted only by pan-Occidental norms which no speaker of an Occidental language needs to study since he heeds them instinctively. For instance, I need not know that the suffix '-ent' requires a verbal stem to sense that "vitent' is impossible. It is so in English, in all the other Occidental languages, and also in Interlingua.

INTERLINGUA GRAMMAR

The structure of the Interlingua vocabulary is essentially romance. Hence the grammatical system to operate the Interlingua vocabulary must needs be romance too. The prevailing tendency in both the romance and the other Occidental languages is to replace grammatic complexities by analytic constructions. Hence the romance grammar of Interlingua needs to be the simplest possible compatible with pan-Occidental usage. This implies that any grammatic feature which one of Interlingua's contributing languages has done away with need not be accounted for in Interlingua either. However, it also implies that no grammatic feature which all the contributing languages require can be neglected in Interlingua, even if it seems logically and rationally superfluous.

Interlingua has no gender differentiation, but it does have a definite article which is invariable as in English.

Interlingua has no personal endings in the verb. All the forms of a verbal paradigm are alike, and the various persons are distinguished only by the pronoun or some other subject. But Interlingua does distinguish several tenses by verbal endings.

Interlingua has no declension of nouns. The subject and object functions of the noun are distinguished by position as in English: E.g., 'the dog bites the man' and 'the man bites the dog.' What certain languages express by the genitive and the dative, is handled in Interlingua by phrases with 'of' and 'to' ('de' and 'a'). But Interlingua does not violate pan-Occidental usage by abolishing all traces of declension in the personal pronouns. For these it retains two forms, a subjective and an objective one: Thus, for example, English 'I' and 'me' remain distinct in Interlingua as 'io' and 'me.'

GRAMMATIC PARTICLES

The most important part of Interlingua gram-

mar is managed not by observing a multiplicity of constructional rules but by manipulating a considerable number of grammatic particles of the kind of English 'of, to, me, them, our, for, but, though, from, in,' etc. These particles have their correspondences in all Occidental languages and are hence indispensable in Interlingua. It must be noted that although grammatic particles are part of the vocabulary of a particular language, their primarily grammatic role supports the conclusion that in the case of Interlingua they must be purely romance. Interlingua particles which cannot be derived from the modern romance languages because of lack of consensus are taken directly from Latin. Numerous Latin particles are at least indirectly alive and international because of their occurrence as prefixes or in familiar proverbial sayings. Examples are 'ultra, pro, per, semper, inter, ex.'

INTERLINGUA MANUALS

The basic manuals of Interlingua were compiled by the research staff of the International Auxiliary Language Association. They are a comprehensive Interlingua-English dictionary and a fundamental reference grammar of Interlingua, both published in 1951.*

The appearance of these books marked a turning point in the history of interlinguistics. In a sense they represented a complete and radical break with the past, and yet their climactic significance can be understood only in terms of the preceding development.

HISTORY OF INTERLINGUISTICS

The quest for a planned universal language can be traced in European history to precisely the time when the practical functions of Latin as a supranational cultural language began to lose ground. The first significant theoretical probings of the problem were the contribution of Leibnitz and Descartes. Both men were interested in a psychologically unconditioned language. They were aware of the fact that pure philosophy is constantly disturbed by language habits, and to their mind an ideal language would not influence thought but serve exclusively as a tangible respresentation of its absolute elements.

We are today, both philosophically and philologically, prepared to prove that thought or logic without psychologic orientation, and hence without a relationship of interdependence with language, does not and cannot exist. If we pursue this conception of ours back in history, we locate the earliest traces of it somewhere in the middle of the eighteenth century when it was stated for the first time that a planned language can only be imagined in the form of an adaptation of one or several existing languages.

ESPERANTO

In any event, the interlinguistic history of the past century is determined by the interplay of the two conceptions just alluded to. A typical compromise between them is represented by Esperanto whose ideal is a mathematically precise derivational and grammatical structure of just the kind Descartes and Leibnitz had in mind but whose basic concepts and root forms are taken over virtually intact from the living languages.

The several rebellions against Esperanto which occurred early in this century aimed at neither more nor less than a re-adjustment of the balance of what was awkwardly called schematism and naturalism. All these would-be reforms of Esperanto attempted to reduce the amount of schematic analysis which Esperanto had put in spots where ordinary "psychological" thinking sees nothing to be analyzed. As a matter of fact, Esperanto itself paid heed to this trend at least to the extent of admitting a selection of the so-called "international" words in addition to its basic schematic forms. Thus for instance it is possible to translate the word 'hospital' into Esperanto as *hospitalo,* though in the spirit of the original pattern of the lan-

* Gode, Alexander, editor. *Interlingua-English, a Dictionary of the International Language.* New York, Storm Publishers, 1951. lxiv, 416 p.
Gode, Alexander, and Blair, Hugh Edward. *Interlingua, a Grammar of the International Language.* New York, Storm Publishers, 1951. x, 118 p.

guage the concept should be represented by the logically evolved form *malsanulejo,* i.e., the noun aspect [-o] of a gathering place [-ej-] of individuals [-ul-] who are characterized by the opposite [mal-] of health [-san-].

"NATURALISM"

As new generations of interlinguists grew up, new systems appeared to bear witness to the fact that Esperanto had failed to satisfy all hopes. It is interesting to note that among the hundreds of half- and three-quarter-baked auxiliary-language systems which have been worked out since the time of Esperanto, there are very few that favor the mathematico-logical approach of Descartes and Leibnitz to a greater extent than Zamenhof, the father of Esperanto, had done. The "naturalistic" idea kept growing in stature.

The most important systems to illustrate this point are *Latino sine flexione* by the great Italian professor of logic and mathematics, Giuseppe Peano, and Occidental by the Balto-Russian naval officer Edgar de Wahl. It needs to be emphasized that both these systems were and still are exceedingly valuable contributions. Both are definitely precursors of Interlingua in the sense that they are strongly preoccupied with existing interlingual elements. In both, however, there is ample evidence of the "hold beyond the grave" exerted by the old ideal of counter-psychologic schematization.

In terms of the interlinguistic history it is the contribution of the International Auxiliary Language Association that it abandoned completely the idea of *constructing* a universal language. Instead it was understood that languages and cultures are interdependent entities. This led to the paradoxical conclusion that while the construction of supranational tongues is at best a charming but idle parlor game, the vague preoccupation of interlinguists of the past with the existing international vocabulary did point the way to a possible planned language for all nations. Once it is recognized that the vocabulary termed international corresponds to a supranational cultural homogeneity, the possibility emerges of putting that vocabulary into usable shape, extracting it, resurrecting and codifying it.

INTERNATIONAL AUXILIARY LANGUAGE ASSOCIATION

The auxiliary language called Interlingua became possible when the idea of constructing an auxiliary language was abandoned. This is a summary statement of the final result of a long and arduous development. As a matter of fact, when the International Auxiliary Language Association was founded in 1924, the expected outcome was of a fairly different kind.

After the first World War one of the corollaries of the prevailing high hopes for a future of international peace was a renewed interest in the question of an auxiliary language. The International Research Council appointed a committee to investigate the matter. The internationally known chemist, Frederick G. Cottrell, served as chairman. In response to his invitation, the American, British, French, and Italian Associations for the Advancement of Science and the National Research Council of the United States formed cooperating committees. The American Council on Education, the American Classical League, the American Council of Learned Societies, and the American Philological Association also organized committees. The reports of these bodies indicated consensus in but one point: the fact that the matter was highly complex and would require prolonged and thorough study.

At the instance of Dr. Cottrell, the International Auxiliary Language Association was organized as a permanent body to undertake this task. Under the leadership of Mr. and Mrs. Dave Hennen Morris of New York, the Association was incorporated "to promote widespread study, discussion and publicity of all questions involved in the establishment of an auxiliary language, together with research and experiment that may hasten such establishment in an intelligent manner and on stable foundations."

The early efforts of IALA, as the International Auxiliary Language Association came to be called, were concentrated on exploring the

possibility of combining the major existing auxiliary languages. This led to extensive research in comparative linguistics as well as in the field of language pedagogy. The results of about two decades of concentrated work of an international staff guided by renowned linguists both in Liverpool and New York City deserve to be given full recognition in a comprehensive history of IALA. In the present context it may simply be stated that all that work, whatever its absolute value, seems to have approached the final goal by indirection. Viewed in retrospect we may claim that the program of detailed philological work which led to the final formulation of Interlingua was largely the work of Mr. Clark E. Stillman. It was my privilege to work with him as his assistant and to succeed him as IALA's Director of Research, and I believe I may claim for myself the merit of having given his program the final coherence outlined in the first portion of this account.

PROMOTION OF INTERLINGUA

It is evident from the history of Interlingua that the publication of its basic manuals in 1951 was not taken by its backers as the signal for the start of a promotional campaign in the traditional sense. The basic idea in back of Interlingua was that its appearance should dramatize the supranational validity of the pan-Occidental portion of each contributing language. In a sense Interlingua was not to be presented as a new language but as a method enabling a Frenchman or a Spaniard or a German, etc. to expand the interlingual portion of his native language into a full-fledged language ready for service in international communication.

The active use of Interlingua might require some training. The passive comprehension of it could be taken for granted on the part of all those whose educational equipment could serve them in their proccupation with matters of supranational import.

INTERLINGUA DIVISION OF SCIENCE SERVICE

Interlingua was evidently available for all forms of written and oral utilization, but it was also apparent that its primary field of service would be in science communication. This suggested a procedure which was realized under the far-sighted guidance of Mr. Watson Davis, Director of Science Service. As of April 1, 1953, the Interlingua Division of Science Service began operations as the sole active successor to IALA.

The work of the Division has consisted primarily in the promotion of the utilization of Interlingua as a secondary editorial language in scientific publications. The program of internationalizing the accessibility of scientific publications by the presentation of all author's summaries in Interlingua was first adopted by the *Quarterly Bulletin of Sea View Hospital.* The first major monthly to adopt the plan was *Blood,* the well-known journal of hematology. The first not restrictedly medical journal to follow suit was the *Journal of Dental Medicine.* It is the merit of the editors of these publications to have understood the service potential of Interlingua at a time when it might have seemed justified to consider the whole venture an interesting but ephemeral experiment.

SECOND WORLD CONGRESS OF CARDIOLOGY

If dramatic evidence is required to show that Interlingua is no longer an experiment but that it has come of age, we can point to the ever-growing list of scientific publications which are utilizing Interlingua summaries in all their issues. We might also mention the fact that the language is now being taught in the Division of General Education of New York University. But the decisive event, one which a future historian of Interlingua will most probably single out as the "start in earnest," was no doubt the Second World Congress of Cardiology held in Washington in September 1954. The official program of the Congress contained summaries of all the papers presented, and these summaries were printed in but two languages: English and Interlingua. If the English summaries were potentially accessible to about 55 per cent of the world's cardiologists, the Interlingua summaries served to round out the total to practically 100 per cent. This was the first mass

trial of Interlingua. There were upward of 300 papers summarized in the program of the Congress, and each summary averaged between 250 and 300 words. After the successful completion of this assignment, Interlingua was established as a functioning tool of international communication. Its subsequent utilization could no longer be described as preliminary or experimental.

In conclusion I wish to state once again that Interlingua is neither a cure-all nor a competitor of other tools of international communication. There are areas where it is useless. There are other areas where it can play but a minor role. But there are also areas where it is irreplaceable. These are the areas where either Interlingua is called upon to do the job, or the job is not done at all. At present the most significant assignment of this kind would seem to be the full internationalization of author's summaries in specialized journals and congress programs. In what adjacent domains the utility of Interlingua can likewise be demonstrated remains, of course, to be seen.

INTERLINGUA — INSTRUMENTO DE COMMUNICATIONES INTERNATIONAL

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SUMMARIO IN INTERLINGUA

Le objectivo del presente articulo es exponer le causa de interlingua. Le material es organisate in duo sectiones. Le prime de istos es theoric, le secunde es historic.

Del puncto de vista theoric le autor comencia per signalar que le problemas del communication international es nimis complexe pro esser resolvite per un sol panacea. Le insistentia que interlingua es utile in certe situationes non significa que le anglese, le francese, e mesmo le esperanto es inutile in alteres. Interlingua es un instrumento in le servicio international. Il es inevitabile que su utilitate profita quando altere instrumentos de utilitate comparabile succede a extender lor applicationes.

Pro clarificar le characteristicas fundamental de interlingua le autor presenta un analyse di ille tractos del lingua anglese que pare haber promovite su importantissime rolo international. Le plus significative inter iste tractos es le capacitate del anglese de utilisar e manipular le si-appellate parolas international. Gratias al existentia de tal parolas il es possibile scriber un texto anglese de maniera que un francese, un germano, etc. recognosce un grande portion del terminos usate per associar los con correspondente formas in su proprie lingua materne.

Es sublineate le facto que le existentia del vocabulario international non es un accidente historic. Iste vocabulario es le creation de un supernation, i.e. del communitate historic de populos que pertine culturalmente al tradition latin o roman o judeo-christian o simplemente occidental.

Per affirmar que le lingua anglese per exemplo es internationalmente si importante gratias al facto que illo utilisa grande portiones del vocabulario pan-occidental on postula que le lingua anglese es in un certe senso un variante o un dialecto de un supralingua pan-occidental.

Le supralingua pan-occidental superviveva latentemente a transverso le seculos ab le disintegration del unitate linguistic del Occidente. Illo redeveniva activissime quando le populos del Occidente institueva lo que nos cognosce in nostre die sub le nomine de scientia e technologia. A causa de lor natura fundamentalmente occidental, iste campos del activitate human disveloppava un ideologia e mesmo un terminologia equalmente occidental, e quando lor influentia

afficeva le mundo integre, etiam le correspondente elementos lingual obteneva un importantia mundial.

Assi le vocabulario interlingual pan-occidental, i.e. le lingua del civilisation del west, i.e. interlingua, se establiva historicamente e organicamente como un lingua universal pro usos special determinate per su structura special.

Post comprender iste facto le philologo se trova non plus confrontate con le problema de construer un lingua universal sed simplemente de organisar le lingua universal que jam existe.

In le secunde section del presente articulo le autor monstra que le conception de un lingua mathematicamente exacte es derivate ab le theorias de certe philosophos del dece-septime e dece-octave seculos. Le idea que un lingua universal debe esser derivate e non construite es plus juvene, sed in le curso del tempore illo ha reimplaciate su predecessor. Le definitive realisation del conception de un lingua supranational natural, i.e. integremente libere de constructiones artificial, non esseva possibile ante le complete comprension del ideologia exponite in le prime section del articulo.

Interlingua, que es le supra-describite lingua supranational natural, esseva elaborate (o, si on prefere, extrahite e codificate) in le laboratorios linguistic del Association de Lingua Auxiliar International, le qual es plus generalmente cognoscite sub le nomine de IALA. Illo esseva organisate in 1924, sed plus que 20 annos esseva requirite usque finalmente le bon via esseva discoperite e energicamente persequite.

Le manuales fundamental de interlingua esseva publicate in 1951. Pro initiar le promotion del uso de interlingua in le campo scientific, le Division de Interlingua de *Science Service* esseva establite in 1953. Iste organisation se occupa principalmente con le introduction de interlingua como lingua secundari pro summarios e synopses in periodicos scientific. Le prime jornales que utilisava lo in iste maniera includeva le *Journal of Dental Medicine* (Jornal de Medicina Dental). Le dependentia de interlingua del linguas natural del Occidente explica su immediate utilitate. Quasi omne le personas qui lege interlingua in le periodicos jam usante lo regularmente, trova que illes lo comprende sin studio preparatori.

Le prime campo scientific que se serviva extensemente del disponibilitate de interlingua esseva le medicina. Un evenimento decisive in le trienne historia del Division de Interlingua de *Science Service* esseva le utilisation de interlingua in le programma del Secunde Congresso Mundial de Cardiologia que habeva loco in Washington in septembre 1954. Iste evenimento demonstrava le absolute validitate del theoria super le qual interlingua esseva disveloppate e establiva lo como instrumento communicational de recognoscite valor in le campo international.

TEN YEARS OF DENTAL MEDICINE THROUGH THE PAGES OF THE JOURNAL OF DENTAL MEDICINE — 1946-1955

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With the publication of the first issue of the *Journal of Dental Medicine* in October 1946 a new era in dental journalism was begun. The Journal, as the official quarterly publication of the American Academy of Dental Medicine, carries out its objectives, as originally propounded by its founder, Dr. Samuel Charles Miller, namely:

> "To promote the study and dissemination of knowledge of the cause, prevention and control of diseases of the teeth, their supporting structures and adnexae and related subjects; and to foster and promote a better scientific understanding between the fields of dentistry and medicine."

The survey of the Journal of Dental Medicine finds it replete with original articles, comprehensive reviews, case reports and reviews of books as well as surveys of the dental and medical literature. While the contents of the Journal are especially chosen because of their pertinence to Dental Medicine, the wide professional interest it has attained reveals its universal appeal.

The purpose of this review is threefold: first, to present in the form of abstracts the contributions of the physicians, dentists and researchers who are daily advancing the science and arts of Dental Medicine; second, to list under their appropriate classifications, the case reports and review articles which have appeared in the pages of the Journal; and third, by collating the various contributions to give perspective to the study of Dental Medicine.

In the process of abstraction of articles for the preparation of this report, it was found that case reports, articles on technique, therapy and the reviews, which are all fully documented lost much of their effectiveness in the process. Therefore, these are only listed by title and author, for ready reference to the originals.

The material is listed according to subject and is arranged alphabetically by authors in the following categories. 1. Dental Medicine, 2. Diagnosis, 3. Etiology, 4. Geriatrics, 5. Medicine, 6. Nutrition, 7. Psychosomatics, 8. Pulp Canal Therapy, 9. Research and 10. Therapy.

1. DENTAL MEDICINE

"The Social Responsibility of Organized Dentistry and How it is Being Met by the A.D.A." By Phillip E. Adams.[1]

"Do You Have Trouble with Dentists?" by Lewis J. Bell[2] presents a number of sources of difficulty in the relationships between the physician and dentist. A plea is made to the physician to avoid comments likely to interfere with the patient's acceptance of dental care.

A report on "The Rhode Island Plan for Furthering Medical Dental Relationships" by J. Lewis Blass[3] calls attention to this advance in medical-dental relations through the action of their respective societies. This plan was initiated by the Commonwealth Fund's Commission on Hospital Care which stated, "Dental examinations, directed toward the discovery and diagnosis of dental and oral infections which may be related to systemic diseases, should be made of all patients admitted to hospitals except when the physician in charge pronounces this procedure unnecesary or impractical."

"The Role of Dental Medicine" by Ernest Charron.[4]

"Public Health Aspects of Periodontics" by Clifton O. Dummett presents periodontal dis-

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ease as a public health problem because of its chronicity and the large number of teeth sacrificed to it. Emphasis is placed on the need for prevention, periodic examination and education in periodontal disease. It also calls for information about demand, cost and need of periodontal care for proper planning in this service.

"Current and Future Economic Trends in the Various Phases of Dentistry" by I. Michael Harris and Morton de Scherer,[6] reports on a workshop in which the following were discussed: Raising community appreciation of dentistry, gaining acceptance of services, building and maintaining a practice and interdependence between general practitioner and specialist. Some recommendations were made for society activities in these fields.

"Dentistry in Relation to Internal and Preventive Medicine" by John A. Kolmer[7] discusses possible reasons for individuals with primary foci of infection escaping disease. Other interrelationships between focal infection and disease are brought out. Also considered are examples of systemic conditions affecting the oral cavity, periodontal structures and adnexae. Causes of bad breath, dryness, salivation and cervical lymphadenopathy are suggested. The importance of internal medicine to dentistry is emphasized.

Dental Education and Medical-Dental Relations" by Albert L. Midgley.[8]

"The Dental Information Bureau — Your Public Relations Agency" by John W. Milford.[9, 10, 11]

"The Dentist's Contribution Toward a Complete Health Service" by Samuel Charles Miller[12] lists some of the situations in which the dentist may aid the physician in the care of the patient. Nutritional suggestions made by the physician may be harmful to the teeth or misunderstood by the patient to his detriment. Local pathosis may create systemic effects, may be related to the emotional status or may be an indication of an endocrine or blood disturbance requiring medical care.

"The Role of Dental Medicine" by D. P. Mowry.[13]

In "The World Health Organization" James E. Perkins[14] presents its program, outlines significant parts of its constitution and gives reasons for support of this group by the United States.

In "The Lofty Mission of the Physician-Dentist," Pope Pius XII,[15] translated by Albert Laferriere, outlines the relationship between medicine and dental medicine and discusses the art of dental diagnosis and technology as well as the tact and psychological insight needed for dealing with patients. He credits the dental profession for its accomplishments in improving man's life as a whole through proper care, relating oral disturbances to the disposition and working capacity. He emphasizes the relationship of good oral health and good digestion and systemic health, good or bad temper as related to the oral status, the role of the teeth and oral structures to speech and, finally, the importance of the mouth and the lips to human intercourse.

"Dental Medicine" by Walter H. Wright[16] is concerned with the development of dental medicine as a professional discipline, its relationship to the systemic health and its integration with medical science in the field of public health. Wright urges those interested in dental medicine to bend their efforts toward bridging the narrowing gap between dentistry and medicine to the mutual benefit of both professions.

2. DIAGNOSIS

"Chairside Patient Education in Periodontal Disease" by J. Lewis Blass[17] presents verbal and visual means that may be applied in the education of patients during diagnosis as well as their motivation to acceptance of periodontal treatment. The clinical signs of periodontal disease are illustrated and described in both scientific and lay language. A set of models as an adjunctive aid to patient education is described.

"The Routine of the Otolaryngologic Examination" by Herman J. Burman[18] presents the material in a manner intended to broaden the dentist's view in this field. Questions used to elicit necessary information from the patient as well as the routine physical examination to be followed are given. This en-

ables the practitioner of dental medicine to serve his patient better by more intelligent cooperation with the physician.

In "Dental and Medical Photography", William Greenhut[19] describes the importance and value of photography as an aid to diagnosis, the study of the progress of therapy and in teaching. The types of apparatus, films and techniques that he has found to give most certain results are described and well-illustrated. The use of close-up tubes with extensible steel rods for setting the camera-object distance is recommended. Ten suggestions are given as a summary of years of experience in general and dental photography.

"Occlusion—the Orthodontic Point of View" by Samuel Hemley[20] considers occlusion the basis of all dentistry and presents historical concepts of normal occlusion with the "individual normal" as most effective. He emphasizes that occlusions vary from one another and the occlusion of the same individual varies with age. The author regrets, therefore, that the public and some members of the profession consider abnormal a child's occlusion in the presence of a relatively deeper overbite, spacing between incisors and irregularity in the alignment of lower incisors during the change to a mixed dentition. He states that growth changes often correct these conditions and that cusp changes should not be made to avoid interference with the normal occlusal pattern.

"The Dentist's Role in the Detection and Prevention of Systemic Disease" by Isadore Hirschfeld[21] July 1952.

"Periodontal and Soft Tissue Diseases in Children" by Lewis R. Kelston[22] is a chapter from a textbook on pedodontics dealing with gingivitis, infections, oral lesions, dietary deficiencies and periodontitis in children. An outline is presented as an aid for complete oral diagnosis of the child.

"The Place of Focal Infection in the Syndrome of Chronic Illness" by John O. McCall[23] states that, although not all patients with obviously infected teeth show systemic disease, the presence of chronic infection is not to be regarded lightly. The factors entering into the resistance to infection in some patients are not known. We need to know, also, which diseases are caused by focal infection, why treated patients have relapses, how it may be determined that infection is invading the blood stream to cause disease, and what pertinent tests could be applied.

"Pemphigus" by Samuel Charles Miller and Louis R. Burman.[24]

"The Periodontist's View of Occlusion" by Samuel Charles Miller[25] discusses the part played by occlusal dysfunction as a cause of periodontal disease and considers occlusion a "bio-dynamic, ever altering" physiology of the teeth, supporting structures, temporomandibular joints, oral tissues, facial and neck muscles and the health of the salivary glands and the body. Innocuous function of the teeth in harmony with the other structures in periodontic balance exists despite cuspal anatomy or alignment. However, when local or systemic factors disturbing to the occlusion or the supporting structures arise to derange occlusal function, traumatic effects are present. Treatment includes restoration of centric occlusion to the position of centric jaw relation. Free-way space should not be eliminated by bite raising to avoid continuous contact of the teeth. In the same way, bruxism, biting habits and unilateral mastication should be recognized as destructive to the supporting structures and appropriately treated. Dysfunctional strains should be corrected by modification of tooth form for distribution of stresses regardless of the apparent good relationship observable in mounted casts.

"The Role of Dental Medicine in the Prevention of Systemic Disease" by Albert D. Parets[26] gives a helpful guide for more complete and effective diagnosis with a view to noting systemic diseases. The face, neck and upper extremities as well as the mouth and the recourse to medical tests shall all furnish evidences of constitutional illness and the need for investigation by a physician.

"Cancer and the Dentist" by Rieva Rosh[27] is an illustrated contribution to the dentist's knowledge of cancer diagnosis. The observant dentist can recognize symptoms of cancer of the lip, tongue, oral cavity and skin. In fact, early recognition of cancer is made by the

dentist in up to 70% of cases treated by the tumor specialist. Emphasis is placed on the dentist's role prior and subsequent to irradiation or surgical treatment for cancer to protect the patient.

"Unusual Causes for Pain in the Face" by Nathan Savitsky[28] describes myalgia, syphilis, cervical radiculitis, tumors, neuritis and psychogenic factors as causes of face pain. Careful diagnosis and, when necessary, neuropsychiatric consultation is advised.

"The Correlation of the Endocrines and Vitamins in Periodontal Disease" by Leon Sukin[29]

"Sponge Biopsy" by Gabriel R. Vogelson.[30]

ETIOLOGY

"Alveolar Bone in Health and Disease. Possibilities of Reattachment" by Henry M. Goldman[31] reiterates the fruitlessness of the search for a single cause of periodontal disease. The presence of alveolar crest resorption to a greater or lesser degree but with similar amount of gingival inflammation is related to systemic resistive factors. The importance of local and systemic factors must, therefore, be stressed.

"Mouth Breathing: A Contributing Factor in the Etiology of Gingival Irritation" by Theodore Lite[32] presents the physiology of respiration, the effects of abnormal respiration, the causes and effects of mouth breathing and the treatment of its oral effects including the use of petrolatum (Miller). Photographs illustrating the results of treatment are included.

4. GERIATRICS

"Problems of Old Age and Their Treatment" by Harry Benjamin[33] discusses the factors in biologic versus chronologic age, the estimation of biologic and apparent age along with their relationship to the oral condition. Louis R. Burman[34] discusses this paper and emphasizes preventive measures and some rules in treatment of older patients.

"What to Do About Age and Aging" by C. Ward Crampton[35] outlines the routine of a geriatric examination and discusses the significance of chronologic, anatomic, physiologic, statistical, hereditary and pathologic age. The view is holistic and planned to render lifetime service.

"Geriatric Changes in the Oral Mucosa" by Henry M. Goldman[36] states that these are parallel to changes seen elsewhere in the body. The changes during and after menopause are considered of great interest and their symptoms are outlined. They are often identical with those found in chronic desquamative gingivitis.

"Planning for Retirement" by Alonzo F. Myers[37] emphasizes the need for realistic planning for successful retirement. It considers health, finances, activity, and mental outlook as basic for good adjustment.

5. MEDICINE

"Focal Infection and Eye Disease" by Conrad Berens[39] expresses the view that, despite all evidence against the role of focal infection in disease, it must be taken seriously in the presence of serious eye diseases. Dental infection and sinusitis are considered the chief causes of focal infection in eye disease. Four possible reasons are given for failure of a case to show improvement following treatment of the eye infection and the use of vaccines is recommended as supplementary care to the control of foci.

"Internal Medicine in Mouth Lesions" by Felix Boenheim[40] emphasizes the need for cooperation between Dentistry and Medicine. The dentist should attempt first to explain oral pathology on the basis of local causes before seeking the physician's aid. In the presence of some systemic disease, such as leukemia, local intervention for the gingival condition may be serious. Many systemic diseases can be diagnosed first by the dentist and examples are given. 10% of all cases of periodontoclasia are accompanied by definite systemic disease, especially of metabolism or the endocrines. The article closes with the statement that complete cure of the periodontal condition is dependent upon successful treatment of the systemic component.

"Some Occult Sources of Oral Sepsis" by Harold Keith Box[41] reviews the sources of oral sepsis and presents microscopic studies of oral and pocket debris as causes of infection. The

danger to systemic health is emphasized.

"Fascial Plane Infections of the Neck" by Herman J. Burman[42] gives a condensed, illustrated description of the anatomy of the superficial cervical fascia, the alar fascia and carotid sheath, the prevertebral fascia, the submandibular area and the parapharyngeal and retropharyngeal spaces. In addition, a brief description is furnished of the infections and diseases of these areas together with their care.

"Disturbances of the Salivary Glands" by Herman J. Burman.[43]

"Oral Cancerophobia—its Reduction Through Knowledge" by Louis R. Burman[44] outlines and illustrates the oral structures and the variations of normal anatomy that may be encountered. This information is intended to aid the dentist reduce cancerophobia by intelligent explanation and assurance of the patient.

"Focal Infection" by Russell L. Cecil[45] emphasizes the views current on focal infection: it is a theory, not a fact and plays only a small role in diseases previously thought to be caused by it. This is especially the case in rheumatoid arthritis. The author suggests that the decision regarding removal of a suspected focus of infection should be made by the internist after consultation with the dentist.

"Cardiovascular Disease as it Affects Dentistry" by Clarence Denton[46] approaches the problem from the standpoint of determining the existence and nature of the cardiac disease, the problems associated therewith and the methods of handling these problems. Consultation with the patient's physician is advised and means to prevent arrhythmia, congestive failure or other cardiac embarrassment should be practiced.

"Cancer of the Oral Cavity" by Origène Dufresne[47] discusses the etiology, histology and types of oral cancer together with treatment. The dentist's role in prevention and diagnosis is emphasized.

"The Effects of Pregnancy on the Soft Tissues of the Month" by Tolar N. Hamblen.[48]

"Cardiac Problems in Dentistry" by Emanuel Hellman[49] states that the dentist must assume a share of responsibility for the recognition of cardiovascular disease. Patients with cardiovascular diseases present a greater than average surgical risk and require precautionary care. The use of a barbiturate is advised; also that dental work should be done in stages and should be ended at the first onset of pain. Epinephrine should not be used and extensive procedures should be done in a hospital under ether anesthesia.

Recognition of the cardiac patient is made by a history which includes pain of angina, dyspnea or palpitation which are related to effort, cough, syncope, cyanosis, dizziness and other symptoms. Emergency treatment for syncope, shock, dyspnea and angina is outlined and the use of preoperative prophylaxis with penicillin is discussed.

"Acute Thrombocytopenic Purpura with Oral Manifestations" by Leonard L. Leef.[50]

"Lesions of the Oral Mucous Membrane, Medical and Dental Responsibility" by F. Philip Lowenfish.[51]

"The Treatment of Cancer of the Oral Cavity" by David Lyall.[52]

"Erythema Multiforme Bullosum" by Maurice Malsky.[53]

"A Case of Pemphigus" by Harry Roth.[54]

"Dermatologic-Dental Relationships" by M. H. Samitz, Jack Weiner, and Alfred B. Miller[55] discusses dermatologic disorders which show oral components, systemic disorders associated with oral and cutaneous manifestations and some specific dental problems. Among those discussed are occupational dermatoses of dentists, occupational effect on the mouth and teeth and cosmetics of the mouth.

"Foreign Bodies in the Food and Air Passages" by Henry M. Scheer[56] advises the dentist regarding the need for alertness in the prevention of the accidental inhalation or swallowing of his tools or materials. The pathological changes due to the presence of a foreign body in its various ultimate sites and the prognosis are discussed. The technique for emergency tracheotomy is also given. Instructions for teaching the patient to shut off the mouth from the pharynx are given as an aid in the prevention of accidents.

"Dentistry and Otolaryngology" by Henry M. Scheer[57] presents the related problems of

these fields and indicates the possibilities inherent in a complete dental diagnosis. Diagnostic clues to various otolaryngologic entities that complicate dental complaints of the patient are described.

"Cutaneous Virus Diseases" by John M. Shaw and Arthur C. Curtis[58] is an illustrated outline of interest to the dentist and physician. Definitions, progress, clinical description and treatment of the lesions is presented. The diseases are presented under three groupings: vesicular, exanthematous and verrucous.

"The Role of the Dentist in Diabetes Mellitus" by Anthony Sindoni[59] deals with the dentist's help to the physician in the diagnosis of diabetes as well as in treatment. The importance is discussed of a careful diabetic history during dental examination, the symptoms of diabetes, and the oral lesions associated with the disease. The treatment and surgical care of the diabetic patient together with the need for elimination of infection and restoration of function are discussed.

"The Relationship of Endocrinology to Dental Medicine" by Norman G. Schneeberg[60] outlines the functions of the endocrine glands and surveys the effects of certain endocrine diseases. Stress is laid upon discovery of the various endocrinopathies so that medical preparation of the patient may be accomplished before dental procedures are undertaken.

"Cancer of the Gingivae" by Sidney Sorrin. [61]

"Endocrinological Relationships to Oral Problems" by A. I. Weisman.[62]

In "Endocrine Functions", William Wolf[63] states that oral structures share in some degree the effects of systemic diseases. This results from the liability to oral effects of locally lowered resistance and the predilection for early oral signs of certain systemic diseases. An inadequate amount of growth hormone from the anterior lobe of the pituitary may reduce the size of the facial bones and delay tooth eruption, or its opposite may increase the size of the facial bones and lead to spaced teeth, if excessive. Hypothyroidism may lead to an increase of lymphoid tissues and to gingival thickness. Premenstrually, the ovaries create edema of the oral soft tissues and often during pregnancy cause gingival enlargement and tumors. Hyperparathyroidism as a cause of alveolar bone destruction and the drifting of teeth and the effects of diabetes mellitus in periodontal pathology are discussed. The high blood sugar in the latter disease is conducive to bacterial growth.

6. NUTRITION

"A Simplified Guide for Evaluating Diet Histories" by J. Lewis Blass[64] presents, with an illustration of the guide, a means for more scientific and complete evaluation of diet histories. The guide graphically indicates the necessary information to integrate dietary intake with good nutrition. It breaks down the food intake as to the amount and variety taken in nine categories, indicates the kind and amount of vitamins, minerals and other elements supplied in the diet and shows the amount of calories taken in each group. This information simplifies the planning of an adequate and well-balanced nutritional prescription needed under varying conditions of daily activity for good nutrition in health or in the presence of periodontal pathosis.

"Nutritional Lesions of the Mouth Related to Endocrines" by Morton S. Biskind.[65]

"Nutrition and Dentistry" by Morton S. Biskind[66] calls attention to two effects of nutrition: reflection in the oral tissues and, if seriously neglected, serious change in metabolism and endocrine function. A prime systemic effect is impairment of liver function followed by excess estrogen, in both sexes, and possibly diabetes. It is advised that many tongue lesions can be treated nutritionally and checked upon with color photographs to note changes. For adequate nutritional therapy, intensive, persistent and complete nutritional therapy of artificial and natural sources, as in liver, is advised.

"Nutrition and the Dentist" by Neil W. Chilton[67] discusses some factors that enter into the evaluation of nutritional status. Chilton feels that the dentist is in a better position than the physician since he can determine the part played by local factors in the production of lo-

cal changes. Nutritional inadequacy may occur from insufficient intake or as a result of impaired absorption and utilization. Inadequate supplies of nutritional elements may cause tissue depletion, chemical or physiologic changes, subclinical or gross anatomical changes and, finally, classic florid deficiency disease. Impaired absorption and utilization of nutrients are stated to be due to a number of local or systemic physiologic or pathologic changes. These may be involved in eating, digestion, gastrointestinal disease, pregnancy and some therapeutic procedures.

"The Dental-Medical Role of Vitamin B_{12}" by Eleanore Cornish.[68]

"Nutrition and the Oral Mechanism" by Robert S. Goodhart.[69]

"Steering Toward Dental Health" by Frances Krasnow.[70]

"History of Nutrition" by Elmer V. McCollum.[71]

"Practical Prescription Procedures in Vitamin Therapy" by Samuel C. Miller, Harry Roth and Marvin Simring.[72]

"Nutrition and Oral Conditions. Bibliography and abstracts of the literature from 1939 to 1951" by Harry Roth, Editor.[73] Special issue 62 pages.

"Nutrition and the Calcified Tissues" by James H. Shaw[74] emphasizes the dynamic state of the teeth throughout life but emphasizes that the changes are so slow that microchemical analysis shows no alteration as a result of post-developmental dietary changes. The mineral components of bone, enamel and dentin are deposited in varying amounts dependent upon nutrients, hormones and systemic health at the time of their formation.

7. PSYCHOSOMATICS

In "Psychosomatic Dentistry for Children" Harold K. Addelston[75] reviews the literature to define the subject and to point up the psychogenic factors in dental disease in children. He suggests that parents should be educated to prepare the child for a dental visit as if it were a meeting with a new friend. He urges avoidance of adult discussion of their own unpleasant dental experiences in the presence of their children. He also feels that more than knowledge of technical skills is needed; a long-term study is needed to learn more about the child's total physical and emotional mechanisms.

"Psychosomatics in Dentistry" by Renato J. Almansi[76] outlines the role played by the mouth in the emotional development of the infant and the parts that the mouth and teeth later assume in the emotional life of the individual. He relates deep-rooted psychological fears to the various fears the person develops in the role of a dental patient. Nervous biting habits are classified as symptoms of repressed aggression.

"Psychosomatic Aspects of Oral Medicine" by Flanders Dunbar[77] reviews organ language relative to teeth and suggests that the patient's whole life situation as well as his relationship with the dentist should be given careful study before dental procedures. Numerous clinical observations are given on the psychological implications of dental treatment. The role of the emotions in the dentist-patient relationship is reviewed. The conclusion is that success with patients is increased in the extent to which the dentist pays attention to the emotional interchange between them.

"Practical Psychiatric Problems in Dentistry" by Henry H. Hart[78] considers some problems in patient relations which he feels can be solved by cooperation of the dentist and psychiatrist. The oral zone is considered primarily as an organ of aggression and destructive attitudes of the dissatisfied patient are related to this premise. The fee is viewed in the light of its psychological implications and clues are furnished for an understanding of the patient's needs on this basis. Problems of the patient's emotional dependence and his attitude toward extraction are presented with a good understanding of the patient's reactions in the dental office. A consideration of the dentist's own problems completes the paper.

Sol J. Ewen[79] divides psychosomatic responses into five categories: (1) neurotics and psychotics who demand unnecessary extractions or who refuse any care; (2) those who develop oral habits; (3) those exhibiting oral symptoms

because of anxiety, as in glossodynia or hysterical pain; (4) the somato-psychic group which has various oral-physical deformities; and (5) the direct psychosomatic group which exhibits caries or periodontal diseases as a result of psychological conflict. Ewen stresses the importance of listening to and observing each patient throughout the entire diagnosis and treatment period to change from the role of dental technician to a dental physician.

"Relation of Oral Pathology to Emotional Illness' by W. Lynwood Heaver[80] emphasizes the importance of the restoration of oral malformations to normal as important to good mental hygiene. The relations of the teeth and oral cavity to the emotional reactions of an individual and to emotional disorders are discussed. Both oral habit patterns and oral pathology may also be related to emotional conflict. An outline is presented of various neuroses and psychoses as related to oral mechanisms and dental defects and deformities.

"Management of the Child Patient in Private Dental Practice" by Harold R. Klein[81] presents a routine for the treatment of children. There is need for a transfer of confidence from the parent to the dentist which may require a stern authoritarian approach or one of reassurance. Some rules given are: never to deceive the child; make deliberate controlled movements in operating; explain all procedures and uses of instruments; and discuss the child's fears frankly and fully. This discussion, together with signals which give the child control of the drill, creates confidence in the patient and in turn in the dentist. The key to the management of the child patient is the overcoming of his fears.

Joseph S. Landa[82] warns against faddism in considering psychosomatics so important as to underrate the physico-chemical concept of disease. He urges careful diagnosis before characterizing a patient's complaint as psychosomatic, and feels that the explanation of too many situations by the mechanism of transference and much of periodontal disease as caused by psychogenic factors as overdone.

"Stomatopyrosis and Glossopyrosis Syndrome" by Joseph S. Landa[83] relates the effect of emotions to oral physiology and places the subject of the paper primarily in the realm of endocrine disturbance and emotional stress. Other factors considered are nutrition and local irritation but control of the emotional factors is given a high place in therapy.

"The Temporomandibular Joint Viewed From the Psychosomatic Standpoint" by Joseph S. Landa[84] considers the causes to be chiefly malocclusion, general conditions and finally psychogenic factors. The latter is considered to be iatrogenic in some cases and caution is urged in conversation with patients who have neurotic tendencies. A number of case histories are given to illustrate the fact that the patient's personality is the object of therapy.

"Psychogenic Sialorrhea and Stomatopyrosis" by Samuel Charles Miller.[85]

Sidney Tarachow[86] states the child's fear of the dentist may be a displaced fear of the parents. He suggests a few simple questions to explore the degree of neuroticism in the child. These pertain to the school record, school and play adjustment, time of and difficulties connected with weaning and bowel and bladder control, eating habits and the general nature of the disciplines to which the child must submit. Several categories of psychological problems in childhood and in old age are outlined and briefly discussed.

8. PULP CANAL THERAPY

"Radiography in Pulp Canal Therapy" by M. B. Auerbach.[87]

"Physiology of the Pulpless Tooth" by M. B. Auerbach.[88]

"Chemotherapeutic Approach in Endodontics" by Alex Dinin.[89]

"The Role of Pulp Canal Therapy in Dental Medicine" by J. A. Englander.[90]

"Diagnosis and Treatment planning from the Standpoint of Endodontics" by Samuel Seltzer.[91]

"An Improved Antibiotic - Antihistaminic Compound for Root Canal Medication (D. C. P.)" by George G. Stewart.[92]

"Modern Concepts in Endodontia" by Samuel Turkenkopf.[93]

"Mechanism of Periapical Lesions and Their Therapy" by Samuel Turkenkopf.[94]

9. RESEARCH

"A Study of Dermoid Tumors Containing Teeth" by Louis B. Amyot.[95]

"Studies on the Use of Gelatin-Glycerine Mixtures in Determination of Stress Analysis by Polarized Light, and Electronic Amplification of Occlusal Sounds" by Charles E. Barrett, Jr.[96]

"Some Dental Observations in Kashmir" by F. B. Benjamin[97] discusses dental health in India where practically nothing but extractions and some fillings are done. Polished rice had no effect on caries incidence. The use of wood sticks, chewed to a fibrous tip for brushing the teeth, is described.

"The Effect of Mental Stress on the pH of Saliva" by Herbert Bricken.[98]

"Prenatal and Postnatal Ingestion of Fluorides" by Reuben Feltman.[99]

"Electron Microscopy" by Cecil E. Hall.[100]

"The Semantics of Scientific Method" Wendell Johnson.[101] Quoted from People in Quandaries.

"Preventing Tooth Decay in Children" by Louis B. Kelsten.[102]

"The Growth of Bone: Some Concepts of Importance to Dental Medicine" by Wilton M. Krogman[103] reports studies of the growth and development of 600 normal children as well as of 550 under orthodontic care. The conclusions were that when skeletal age is retarded a year or more, the likelihood of faulty tooth-bone relationships is created.

"The Importance of the Study of the Local Metabolism in Periodontal Diseases" by Alfonso Leng[104] states that local metabolism of the supporting tissues is altered by malocclusion. Experiments at the University of Chile Dental School elicited a number of other findings outlined in the article: Inflammatory forms of periodontal diseases were acid and vice-versa; in inflammation, respiratory activity of the gingivae is decreased; the lactic acid content of hypertrophied and inflamed gingivae is increased. The author recognizes the difficulty of arriving at definite conclusions on the basis of the reported findings.

"What Has been Contributed to Dentistry by the Radioactive Isotopes?" by Jean-Paul Lusier[105] traces the history of radioactivity from 1896 to the present-day use of isotopes in medicine. The dental applications are discussed together with research findings on permeability, exchange mechanisms and the influence of physiological and pathological factors.

"Occlusal Impact" by Maurice Malsky[106] is a study of occlusal efficiency under varying conditions and reviews, with the aid of diagrams, the physio-mechanical bases for occlusal shaping.

"Charts to Demonstrate the Value of Toothbrushing After Meals" by Samuel Charles Miller.[107]

"A Study of the Cornification of the Oral Mucosa in Normal Males" by Samuel Charles Miller, S. Sigmund Stahl, and Alexander Soberman[108] discusses the exfoliative cytology of the oral mucosa in normal males of various ages. The method is given together with the observations of the study: a constant pattern of cornification which remains constant with aging was observed in the oral mucosa. It concludes on the assumption that changes in the pattern of cornification would follow only after severe metabolic disturbances or specific diseases affecting the mucosa.

"Signs of Periodontal Breakdown on Patients with Malocclusion—Age 10-20" by Timothy J. O'Leary[109] and Carlos E. Sosa is a clinical study, admittedly inconclusive but worthy of reference by other workers in the field.

"A Study of the Keratinization of the Oral Mucosa of Aged Males" by Rugerpe A. Pedreira.[110]

"The Use of a Radiographic Adjunctive Aid in Periodontal Pocket Diagnosis" by Jerome F. Peters and Abraham E. Greenstein.[111]

"Lactobacillus Acidophilus Counts in Periodontal Disease" by S. Leonard Rosenthal.[112] reports a significant difference was found between patients with periodontal diseases and those free of them. Those with periodontal diseases had consistently lower counts although

there was no significant difference in gingivitis, periodontitis and periodontosis.

"Enzymology and Biochemistry of the Mouth" by Irwin W. Sizer[113] discusses some of the roles played by oral enzymes. Their chemical nature and properties are given along with some of the important factors which influence enzyme activity. The formation of organic acids in the oral cavity as a result of fermentation of carbohydrates by bacterial enzymes of caries-production is discussed.

"Regeneration of Tissue Into the Pulp Canal of Monkey's Teeth" by Robert V. Vidair and Earl O. Butcher[114] describes research by means of which it was shown that, in the absence of deep infection, connective tissue regenerates into the pulp canal.

"The Quest for Early Roentgenographic Signs of Retrogressive Alveolar Bone Changes in Children" by George Whinston.[115]

10. THERAPY

"The Modern Concept of Dental Care for Children" by Jerome B. Ackerman.[116]

"Specialized Dental Care for the Problem Patient" by Jerry J. Adelson, Frank E. Fierro and Howard Berger[117] deals with the special problems and needs of the dental patient with cerebral palsy suggesting that some can be handled in the routine manner. An outline is given for preoperative checkup, premedication, anesthesia and the routines of operative and postoperative procedures for cases requiring special care.

"Relaxation of Excitable Patients with Hypnosis" by Philip Ament[118] presents, with a brief history of the subject, a complete verbal technique and approach for inducing hypnosis. The possibilities of hypnosis in the control of habits, physiologic abnormalities and pain and some of the legal implications involved are discussed.

"Psychotherapy in Patient Relaxation" by Philip Ament.[119]

"Stress Removal in Dental Practice with Hypnodontics" by Philip Ament.[120]

"A Guide For Tongue Training" by Saul J. Asnis.[121] describes a prosthetic appliance to be used in training of the tongue to control habits.

"Sodium Dilantin Gingival Hyperplasia and Conservative Treatment" by Ernest Baden.[122]

"Application of Modern Materials to Cutting Edges" by Charles E. Barrett, Jr.[123]

In "Implantation: Principles, Practices and Predictions," Stanley J. Behrman[124] outlines the principles governing the use of implants, the practices followed in this procedure and a comparison of exposed and buried implants. He predicts that magnetic implants will prove to be better tolerated by the tissues than the partially exposed type.

"The Therapeutics of Pain Control" by J. Lewis Blass[125] discusses the physiology of pain and the varied techniques available for the control of pain of oral, dental and periodontal origin. Formulas are given for various preparations and the use of heat physiotherapy for control of pain is described.

"A Device to Aid in Toothbrush Instruction" by J. Lewis Blass.[126]

"Interdependence of Periodontia with Other Fields of Dentistry" by Louis R. Burman, Sol Engel, George Goldsmith and Irving Grenadier[127] indicates the importance of planning and cooperation of the various fields of dentistry for best total results. The role of periodontal treatment, orthodontics, splinting and operative procedures in the cases presented are illustrated and described. The criteria and aids suggested are complete diagnosis, the use of acrylic facings for esthetics, orthodontic treatment when indicated, fixed and removable restorations for splinting and replacement, and complete periodontal care with emphasis on enlisting the patient's cooperation.

"A Device For Testing Sharpness" by Louis R. Burman.[128]

"The Present-Day Rationale of Fixed Restorations" by David H. Coehlo[129] presents the subject with equal emphasis on biology and mechanics. For reduction of stresses the occlusion should be balanced before restoration and multiple abutments used with consideration of the occlusal forces in function. Removal of gingival tissue to aid in impression taking is required at times.

"Reconstructional Aspects of Oral Problems Occurring During Growth and Senescence" by Louis Alexander Cohen.[130]

"The Management of Acute Infections of Dental Origin" by Leon Eisenbud[131] presents the chemicotherapeutic and surgical management of infections. The properties, uses and forms of administration of a number of antibiotics is discussed but penicillin is the choice unless bacteria which are resistant to it are encountered. Surgical care, supplemental to the use of antibiotics, is shown to be greatly facilitated.

"Correction of Open Bite by Selective Grinding" by Joseph Feinsilver.[132]

"Hypertrophic Gingivitis, Its Diagnosis and Treatment" by Irving Glickman[133] discusses for its opening aim the deletion of the term "Hypertrophic" gingivitis and suggests the use of the descriptive term "gingival enlargement." On the basis of etiology and histopathological change, gingival enlargement is divided into inflammatory, non-inflammatory and a combination of both. The non-inflammatory type includes hyperplastic, leukemic, vascular and tumor. Treatment of gingival involvement should be done only after complete clinical and microscopic diagnosis.

"Bone Regeneration with a Periodontal Splint" by Abraham Goldstein.[134]

"Practical Aspects of Antibiotic Therapy in Relation to Dentistry and Oral Surgery" by John A. Kolmer.[135]

"The Implant Denture" by Isaih Lew[136] discusses the increased efficiency of implant dentures accompanying change in design. He presents rules for the guidance of the surgeon and prosthodontist in the construction of successful implant dentures based on his experience in this work.

"Practical Solution to the Prevention and Cure of Temporomandibular Joint Disturbances" by Samuel Charles Miller[137] gives methods for the direct relief and prolonged control of these disturbances. The importance of clinical rather than roentgenographic findings is stressed in diagnosis. The mechanisms of pain, symptoms and causes are also discussed.

"Periodontia, Diagnosis and Treatment" by Samuel Charles Miller.[138]

"The Significance of Stress in the Practice of Preventive and Restorative Dentistry" by Charles H. Moses[139] discusses the mechanism of wear and chewing efficiency and the multiple causes of periodontal disease. The practice of dentistry should be centered on the prevention and control of periodontal diseases rather than on "first aid" care.

"Gingival Enlargement and Inflammation with Alveoloclasia" by Julius N. Obin and Sam N. Grundfast.[140]

"Use of Drugs and Their Effects on Tissue Repair" by Maurice Oringer.[141]

"Correlation of Treatments for Periodontal Pockets" by Marvin Simring.[142]

"Preventive Periodontics" by Sidney Sorrin.[143]

"Occlusal Equilibration—Quo Vadis" by Sidney Sorrin,[144] reviews the place of occlusal equilibration and gives the fundamentals of its diagnosis and execution of the procedure. A well-chosen series of questions and answers casts light on many problems and misconceptions on the subject.

"Treatment of Periodontal Disease" by Sidney Sorrin and Marvin Simring[145] reviews the role of periodontal disease in relation to the practice of dentistry. The uniqueness of each case described calls attention to the many-sided approach to therapy.

"An interesting Case of Orthodontic-Periodontic Treatment" by Sidney Sorrin.[146]

"Observations on the Merits of Oral Irrigation" by Richard W. Slatten.[147]

"Bruxism" by Edward W. Strother and George E. Mitchell.[148]

"Bruxism: Detection and Treatment" by Charles F. Sumner.[149]

"A Visualized Technique of Occlusal Equilibration" by Laurence A Weinberg[150] shows the principles of occlusal equilibration of the natural dentition by means of drawings and brief explanations. The relationship of tooth wear and position to condylar inclines is included.

"Visual Aid Suggestions for the Teaching Curriculum" by George J. Witkin.[151]

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A TEN YEAR HISTORY OF THE AMERICAN ACADEMY OF DENTAL MEDICINE

William M. Greenhut, B.S., D.D.S., F.A.C.D., F.A.D.M.*

The first ten years in the life of the Academy have been years of basic organization. The roots of the Academy are deep and secure. The calibre of its membership makes for a strong foundation and sturdy growth. Since 1945, the roster of members has grown to 746. It was at a meeting on September 24, 1945 that the idea for the Academy was born. At that time, the tentative name chosen was The Academy of Dental Medicine. William M. Greenhut was selected by Samuel C. Miller to engage counsel in order to proceed with the legal means of obtaining a charter and incorporation papers. The original directors of the Academy were: Charles E. Barrett, Jr., J. Lewis Blass, William M. Greenhut, Samuel Charles Miller, and Sidney S. Sorrin. After much discussion, the name of The American Academy of Dental Medicine was chosen and the following purpose of the Academy was set as the preamble to the Constitution:

> "To promote the study and dissemination of knowledge of the cause, prevention, and control of diseases of the teeth, their supporting structures and adnexa, and related subjects; and to foster and promote a better scientific understanding between the fields of dentistry and medicine."

The charter was granted on November 16, 1945. The first meeting was held on May 19, 1946, at which time there were thirteen (13) charter members:

Allan N. Arvins	Maurice Malsky
Charles E. Barrett, Jr.	Samuel C. Miller
J. Lewis Blass	Jules Obin
Louis R. Burman	Harry Roth
Abraham Goldstein	Sidney S. Sorrin
William M. Greenhut	George J. Witkin

Milton Hollins

The Constitution, which was previously prepared, was read and accepted at this meeting. The following officers were elected:

Samuel Charles Miller	President
Sidney S. Sorrin	President-Elect
J. Lewis Blass	Treasurer
William M. Greenhut	Secretary
Harry Roth	Editor

Charles E. Barrett, Jr., was appointed Chairman of the Membership Committee. Louis R. Burman was appointed Business Manager of the Journal of Dental Medicine.

At a meeting on September 15, 1946, plans were formed to hold the First Annual Meeting in June, 1947. Sidney Sorrin was appointed chairman. On November 22, 1946, it was unanimously decided to provide for Honorary Membership and Dean Walter H. Wright of New York University College of Dentistry was selected as the first recipient.

The first Annual Meeting of the Academy was held at the Alpha Omega Fraternity House, 41 East 19th Street, New York City, on June 15, 1947. The names of forty-four (44) applicants for membership were presented, to be added to the roster of seventy-four (74) members. The following officers were elected for the year 1947-1948:

President	Sidney S. Sorrin
President-Elect	J. Lewis Blass
Secretary	William M. Greenhut
Treasurer	George Bruns
Editor	Allan N. Arvins

At the first meeting of the Board of Trustees on December 6, 1947, the first application for the chartering of a Section in Massachusetts was received from George Bruns, who acted as the representative of a group of members. (see the Section report). Following this Board of Trustees meeting, the first Mid-Winter Meeting was held on December 7, 1947 at the Hotel Statler, New York City. Samuel Charles Miller

* Assistant Professor of Periodontia and Oral Medicine, New York University College of Dentistry; President-elect and Historian, American Academy of Dental Medicine. Chief of Periodontia, Bronx Hospital, N. Y.

was Chairman; Harry Roth and Louis R. Burman acted as the committee.

The following members were duly elected to office each year:

1948-1949

President ..... J. Lewis Blass
President-Elect ..... George Bruns
Secretary ..... William H. Greenhut
Treasurer ..... Louis R. Burman
Editor ..... Allan N. Arvins

1949-1950

President ..... George Bruns
President-Elect ..... Louis R. Burman
Secretary ..... William M. Greenhut
Treasurer ..... Gordon R. Winter
Editor ..... Allan N. Arvins

1950-1951

President ..... Louis R. Burman
President-Elect ..... Gordon R. Winter
Secretary ..... William M. Greenhut
Treasurer ..... Alvin H. Berman
Editor ..... Allan N. Arvins

1951-1952

President ..... *Gordon R. Winter
President-Elect ..... Harold R. Gelhaar
Secretary ..... William M. Greenhut
Treasurer ..... Alvin H. Berman
Editor ..... Allan N. Arvins

1952-1953

President ..... Harold R. Gelhaar
President-Elect ..... Alvin H. Berman
Secretary ..... William M. Greenhut
Treasurer ..... George G. Stewart
Editor ..... Allan N. Arvins

1953-1954

President ..... **Alvin H. Berman
President-Elect ..... George F. Clarke
Vice-President ..... S. Leonard Rosenthal
Secretary ..... William M. Greenhut
Treasurer ..... George G. Stewart
Editor ..... Irving Yudkoff

1954-1955

President ..... George F. Clarke
President-Elect ..... S. Leonard Rosenthal
Vice-President ..... William Copperthwaite
Secretary ..... William M. Greenhut
Treasurer ..... George G. Stewart
Editor ..... Irving Yudkoff

*Deceased—Harold R. Gelhaar completed the unexpired term.
**Deceased.

1955-1956

President ..... S. Leonard Rosenthal
President-Elect ..... William M. Greenhut
Vice-President ..... Marcel Archambault
Secretary ..... George J. Witkin
Treasurer ..... George G. Stewart
Editor ..... Irving Yudkoff

FIRST ANNUAL MEETING

The First Annual Meeting of the Academy was held on June 15, 1947 at the Alpha Omega Fraternity House, New York City.

Program

Dean Walter H. Wright ..... Dental Medicine.
M. B. Auerbach ..... Pulp Canal Therapy.
M. S. Biskind ..... Oral Lesions Produced by Nutritional Deficiency.
L. J. Fitzsimmons ..... Pemphigus Vulgaris.
B. Levine ..... Treatment of Periodontal Disease.
E. Alan Lieban ..... A Case of Accidental Trauma.
John Oppie McCall ..... Periodontal Disease in Children.
Lester B. Older ..... Penicillin Ointment in the Treatment of Acute Gingival Infections.
S. M. Robbins ..... Thirty-two Beautiful Teeth with Gingivitis.
David Tanchester ..... Hospital Dental Service.
Samuel Turkenkopf ..... Modern Concepts in Endodontia.

Motion Picture Clinics

1) Sidney E. Riesner
   a. Animation of a Serial Study of Jaw Movements.
   b. Galvanic Stimulations of the Muscles of Mastication.
2) Irving Salman
   Treatment of Traumatic Subluxation of the Temporomandibular Joint with Sclerosing Solutions.

Committee:

Sidney Sorrin, Chairman; Louis R. Burman, William M. Greenhut, Harry Roth.

SECOND ANNUAL MEETING

The Second Annual Meeting of the Academy was held on June 12 and 13, 1948 at the Hotel Statler, New York City.

Essayists

H. J. Burman ..... Disturbances of the Salivary Glands.

Maurice J. Oringer ..... Use of Drugs and Their Effects on Tissue Repair.
Sidney E. Riesner ..... Cine-Fluorography of the Temporomandibular Joint.

Clinics

L. J. Fitzsimmons ..... Diseases of the Mouth.
T. N. Hamblen ..... Diagnosis of Incipient Periodontal Disease.
Joseph S. Landa ..... Psycho-Biologic Problems Relating to Denture Prothesis.
E. Alan Lieban ..... Management of Periapically Infected Teeth.
H. H. Newman ..... Types of Diet and Caries Incidence.
Lester B. Older ..... Dental Photography.
H. Pines ..... Protecting Oral Tissues During Porcelain Construction.
S. M. Robbins ..... Dangers of Self-Medication with Drugs.
B. S. Saturen ..... Treatment of the Periodontal Pocket.
Irwin W. Scopp ..... Dental Service in Veterans Administration Hospitals.
George Stein ..... Enamel Damage of Systemic Origin in Premature Birth and Early Infancy.
Gordon R. Winter ..... Dental Conditions in Cleidocranial Dysostosis.
Edmund Zabriskie ..... Use of Penicillin in Dental Practice.

Committee:

J. Lewis Blass, Chairman; Louis R. Burman, William M. Greenhut.

THIRD ANNUAL MEETING

The Third Annual Meeting of the Academy was held on June 4 and 5, 1949, at the Statler Hotel, New York City.

Symposium on Psychosomatics

Harold K. Addelston ..... Psychosomatics in Dentistry for Children.
Discussor: Sidney Tarachow

Renato J. Almansi ..... Psychosomatics in Dentistry.
Discussor: Joseph S. Landa

Flanders Dunbar ..... Psychosomatics in Oral Medicine.
Discussor: Sol J. Ewen

Round Table Discussions

Lester W. Burket ..... Oral Manifestations of Systemic Disease.
Earl O. Butcher ..... Anatomy of the Head and Neck.
Louis A. Cohn ..... Mouth Rehabilitation.
Harold Klein ..... Dentistry for Children.
Herbert I. Margolis ..... Orthodontics.
S. Leonard Rosenthal ..... Management of the Periodontal Case.
Rieva Rosh ..... Oral Cancer.
Harry Roth ..... Nutrition.
Harry M. Seldin ..... Mandibular Resection; the Use of Sclerosing Solutions.
Walter H. Wright, John M. Converse, Frank E. Jeffreys, Ross M. Campbell ..... Combined Prosthetic and Surgical Procedures in Plastic Maxillofacial Surgery.

Committee:

Louis R. Burman, Chairman; Morris Auerbach, George Bruns, Edward Fisher, William M. Greenhut, Harry Roth, Sidney Sorrin.

FOURTH ANNUAL MEETING

The Fourth Annual Meeting of the Academy was held on June 24 and 25, 1950, at the Copley Plaza Hotel, Boston, Mass.

Essayists

Irwin W. Siger ..... Enzymology and Biochemistry of the Mouth.
Cecil E. Hall ..... Electron Microscopy.
Arthur K. Solomon ..... Use of Isotropes in Biological Research.

Symposium on Oral Cancer

Charles C. Lund—Moderator

Ira W. Nathanson ..... Pathology, Physiology, and Biology of Cancer.
David Weissberger ..... Cancer; Diagnosis, Differential Diagnosis, Pre-Cancerous and Non-Malignancies.
Thomas Anglem ..... Prevention and Treatment of Cancer, including Surgery and X-rays.

Committee.

George F. Clarke, Chairman; Bernard S. Chaiken, Raymond A. Levesque.

FIFTH ANNUAL MEETING

The Fifth Annual Convention of the Academy was held on June 23, 24, 25, 1951 at the

Hotel Dennis, Atlantic City, N. J.

Essayists

Eli Goldsmith — Antimetabolites — A Study in Basic Research and Clinical Application.

John A. Kolmer — Practical Aspects of Antibiotic Therapy.

Round Table Discussions

William F. Harrigan — Diagnosis of Oral, Medical, and Oral Surgical Lesions.

Samuel C. Miller, George J. Witkin — Presentations of Cases of Oral Disease by Three-Dimensional Photography.

Lewis Fox, S. Sigmund Stahl — Medical and Dental Considerations of Patients under Cortisone and ACTH Therapy.

Joseph Echikson — Oral Manifestations of General Medical Diseases.

Sidney E. Riesner, Sidney Sorrin — The Interdependence of Orthodontics and Periodontics.

Harold A. Murray, Sidney I. Kohn — The Birthday Examination.

Seymour Grupp — The Problem of Reattachment in Dentistry.

Jacob Stolzenberg — Psychosomatics and Suggestion Therapy in Dentistry.

Committee:

David Becker and S. Turkenkopf, Co-Chairmen; W. Copperthwaite, Jack Englander, Harold R. Gelhaar, A. A. London, Lester Older, Sal Rifici.

SIXTH ANNUAL MEETING

The Sixth Annual Meeting of the Academy was held on May 29, 30, 31, 1952, at the Mount Royal Hotel, Montreal, Canada.

Essayists

J. P. Lussier — The Use of Radio-Active Isotropes in Dentistry.

Charles Moses — The Significance of Stress in the Practice of Preventive and Restorative Dentistry.

Registered Clinics

Joseph S. Landa, Stuart Landa — Precision and Semi-Precision Attachments and Their Significance in Complete Mouth Rehabilitation.

John W. Gerrie — Maxillo-Facial Surgery

O. Dufresne — Oral Carcinoma.

Robert M. Weiner — Surgical Procedures in Oral Pathology.

Sydney MacSween, Vincent Trembley, George Zimmerman — Symposium on Endodontics.

H. M. Robichaud — Functional Restorations for Pulpless Teeth.

A. G. Racey — Diagnosis in Oral Pathology.

Armand Genest — Bone Implants.

Howard Oliver — Encephalographic Radiology.

Committee:

Wilfred Johnston, Albert LaFerriere, H. H. Pearson, Co-Chairmen.

SEVENTH ANNUAL MEETING

The Seventh Annual Meeting of the Academy was held on June 26, 27, 28, 1953, at the Shoreham Hotel, Washington, D. C.

Essayists

Elmer V. McCollum — History of Nutrition.

James H. Shaw — Nutrition and Calcified Tissues.

Harold K. Box — Occult Oral Sepsis. Presented by Donald S. Moore

Joseph L. Bernier — Influences of Metabolic Disturbances in the Development of Benign and Malignant Oral Lesions.

Medical Aspects of Nutrition

Samuel Dodek — Obstetrical Aspects of Nutrition.

Harry H. Gordon — Modern Trends in Pediatric Nutrition.

Milton S. Sacks — Medical Aspects of Nutrition.

Nutrition and the Dentist

Harry Roth — Moderator

Edward C. Dobbs — Dietetics

Irving Abramson — Endodontics

Arthur Dick — Oral Surgery and Pathology

Neal W. Chilton — Periodontics

Benjamin Poster — Prosthedontics

Committee:

Walter I. Levine, Chairman; Clement C. Alpert, Vice-Chairman; F. J. Fabrizio, Sidney N. Greenspan, Louis Levenson, Irving S. Lichtman, Charles E. Loveman, Albert S. Loewenson, Ernest H. Moser, David H. Willer.

EIGHTH ANNUAL MEETING

The Eighth Annual Meeting of the Academy was held on May 14, 15, 16, 1954, at the Penn-Sherwood Hotel in Philadelphia, Pa.

Essayists

M. Harris Samitz	Dermatology
William Likoff	Cardiovascular Disease
Anthony Sindoni, Jr.	Metabolism
Norman G. Schneeberg	Endocrinology
Oscar Balson	The Temporomandibular Joint
Wilton M. Krogman	Bone Growth
Andrew J. Donnelly	Benign Tumor

Discussion Groups

Samuel Seltzer	Endodontics
Jack L. Balin	Occlusion
Samuel C. Miller	Periodontics
Morton Amsterdam	Prosthetics

Moderator—Seymour Pollock

Committee:

George G. Stewart, S. L. Rosenthal, Co-Chairmen; P. Gross, S. Kaplan, S. Pollock, J. T. Rothner, B. Saturen, L. Sukin, Alex Weinberger.

NINTH ANNUAL MEETING

The Ninth Annual Meeting of the Academy was held on May 13, 14, 15, 1955, at the Park Sheraton Hotel, New York, N. Y.

Essayists

Herbert S. Kupperman	Stress and the General Adaptation Syndrome.
Victor H. Witten	Effects of Stress on the Oral Mucosa.
Lawrence E. Hinkle	Physiological Aspects of Stress.
Albert Stunkard	Psychological Aspects of Stress.

Moderator—Samuel Charles Miller

James E. Perkins — The World Health Organization.

Seminar on Implant Dentures

Isiah Lew, M. A. Pleasure, Stanley J. Behrman

Committee:

George J. Witkin, S. L. Rosenthal, Co-Chairmen; N. Alderman, J. Englander, H. Gelhaar, H. Kimball, S. Kirsch, T. Lite,, A. A. London, J. Obin, A. Reiner, I. Ross, S. Ross, M. Salutsky, L. Scott, A. Yohai, I. Yudkoff.

MID-WINTER MEETINGS

The First Mid-Winter Meeting of the Academy was held on December 7, 1947, at the Statler Hotel, New York, N. Y.

Greetings from . . .

Sidney Sorrin—President, American Academy of Dental Medicine.

J. L. T. Appleton—Dean, Thomas W. Evans Museum and Dental Institute, School of Dentistry, University of Pennsylvania.

Bion R. East—Associate Dean, Columbia University School of Dental and Oral Surgery.

Russell W. Groh—Dean, University of Buffalo School of Dentistry.

Gerald W. Timmons—Dean, Temple University School of Dentistry.

Walter H. Wright—Dean, New York University College of Dentistry.

Topic Discussions

Leader	*Topic*
1. Morton S. Biskind	Nutrition and Dentistry.
2. George F. Clarke	Clinical Procedures.
3. J. A. Englander	Causes of Failure in Pulp Therapy.
4. L. J. Fitzsimmons	Local and Systemic Implications of Periodontal Disease.
5. Irving Glickman	Hypertrophic Gingivitis, its Diagnosis and Treatment.
6. H. M. Goldman	Alveolar Bone in Health and Disease; Possibilities of Reattachment.
7. F. Philip Lowenfish	Lesions of the Oral Mucous Membrane; Medical and Dental Responsibility.
8. Hayes Martin	Mouth Cancer.
8. John Oppie McCall	The Place of Focal Infection in the Syndrome of Chronic Illness.
10. Samuel Turkenkopf	The Mechanism of Periapical Lesions and their Therapy.

Committee:

Samuel C. Miller, Chairman; Louis R. Burman, Harry Roth.

SECOND MID-WINTER MEETING

The Second Mid-Winter Meeting of the Acedemy was held on December 5, 1948, at the Statler Hotel, New York City.

Program

1. The Use of Sodium Fluoride in Caries Control — David B. Ast
2. Problems Associated with Third Molar Extractions — Morris J. Boyer
3. Focal Infection — Russell L. Cecil
4. Cancer of the Mouth — Harry E. Ehrlich
5. Present Day Knowledge Concerning the Etiology and Treatment of Periodontal Diseases — Edward T. Fischer
6. Psychogenic Problems in Dentistry — Henry H. Hart
7. Problems Related to Mouth Rehabilitation and their Dento-Medical Complications — Max Kiesler
8. Nutrition and Its Effect on the Dental and Periodontal Tissues — H. D. Kruse
9. The Role of Oral Diagnosis in Medical Treatment — Samuel Charles Miller
10. Dentistry and Otolaryngology with Discussion of Their Related Problems — Henry M. Scheer
11. How the Physician Can Cooperate with the Dentist in the Treatment Planning of a Case — William Wolf

Committee:

Sidney Sorrin, Chairman; M. Auerbach, G. Bruns, L. R. Burman, E. Fisher, W. M. Greenhut, Harry Roth, George Witkin.

THIRD MID-WINTER MEETING

The Third Mid-Winter Meeting of the Academy was held on December 4, 1949, at the Statler Hotel, New York City.

Round Table Discussions and Clinics

1. Charles Barrett, Jr. — Practical Application of Rules Governing Occlusal Equilibration and their Relation to Temporomandibular Disturbances.
2. Herman J. Burman — The Diagnosis and Treatment of Neck Infections of Dental Origin.
3. Leon Eisenbud — Management of Oral and Related Infections of Dental Origin.
4. Sol J. Ewen — Personality Structures of Patients Revealed in the Dental Situation.
5. M. Joel Friedman — Visual Aids in Patient Education.
6. Henry M. Goldman — Gingivoplasty—a Philosophy of Periodontal Therapy.
7. J. A. Salzmann — Interception of Occlusal Deformities by Growth Guidance.
8. Maxwell Marder — Physical Diagnosis Associated with Dental Service.
9. John O. McCall — Dental Roentgengraphic Findings in Systemic Disease.
10. Julius N. Obin, Arthur Yohai — Aging Process in the Oral Cavity.

Committee:

J. Lewis Blass, Chairman; Louis R. Burman, William Copperthwaite, William M. Greenhut, Julius N. Obin, George Witkin, Arthur Yohai.

FOURTH MID-WINTER MEETING

The Fourth Mid-Winter Meeting of the Academy was held on December 3, 1950, at the Statler Hotel, New York City.

Scientific Session—Problems Occurring During Growth and Senescence of the Oral Mechanism

Louis A. Cohn — Reconstructional Aspects.
Robert S. Goodhart — Nutritional Aspects.
Philip Person — Physiological Aspect.
J. A. Salzmann — Interception of Malocclusion.
Abner I. Weisman — Endocrinological Aspects.

Committee:

George Witkin, Chairman; J. Lewis Blass, David Coelho, J. A. Englander, Sheldon Ross, Nathan Wachtel.

FIFTH MID-WINTER MEETING

The Fifth Mid-Winter Meeting of the Academy was held on December 2, 1951 at the Hotel Statler, New York City.

Scientific Session—The Dentist's Role in Detection and Prevention of Systemic Disease

Isidor Hirschfield — Oral Medicine and Systemic Disease.
David Abrahamson — The Emotions of the Dental Patient.
David Coelho — The Present Day Rationale of Fixed Restorations.

Committee:

George Witkin, Chairman; S. Birnbaum, J. L. Blass, L. Botwinick, J. A. Englander, William Marlens, L. Older, S. Riesner, S. Ross, N. Wachtel, S. Wolfram, M. Yorn.

SIXTH MID-WINTER MEETING

The Sixth Mid-Winter Meeting of the Academy was held on December 7, 1952 at the Statler Hotel, New York City.

Scientific Session—Pain, Diagnosis, Control and Treatment
Essayists

Theodor Blum ..... Oral Diagnostic Procedures.
Samuel C. Miller ..... Practical Considerations of Temporomandibular Joint Problems.
Nathan Savitsky ..... Neurologist Reports on Head Pains.
Colonel Joseph L. Bernier, D.C., U.S.A.—Moderator

Committee:

J. A. Englander and Samuel Turkenkopf, Co-Chairmen; M. B. Auerbach, L. Botwinik, D. Becker, J. L. Blass, W. Copperthwaite, L. Older, H. Roth, S. Sorrin, N. Wachtel, G. Witkin.

SEVENTH MID-WINTER MEETING

The Seventh Mid-Winter Meeting of the Academy was held on December 6, 1953, at the Statler Hotel, New York City.

Scientific Session—Geriatrics

Alonzo F. Myers ..... Planning for Retirement.
Henry M. Goldman ..... Geriatric Changes in the Oral Mucosa.
C. Ward Crompton ..... De-Aging — What To Do About Age and Aging.
Joseph I. Echikson—Moderator

Committee:

W. Copperthwaite, D. Becker, Co-Chairmen; J. A. Englander, A. A. London, M. Pomeranz, A. Posteraro, S. Ross, E. Simmons, H. L. Ward, G. J. Witkin.

EIGHTH MID-WINTER MEETING

The Eighth Mid-Winter Meeting of the Academy was held on December 5, 1954, at the Hotel Statler, New York City.

Scientific Session—Bone

Harry Sicher ..... Bone Formation and Resorption.
Joseph P. Weinmann ..... Variations in the Structure of Bone Tissue and Their Significance in Radiology.
Lester R. Cahn ..... Correlation Between Clinical, Roentgenologic and Histologic Studies in Bone Lesions.

Committee:

Norman Alderman, Chairman; Alex Soberman, Co-Chairman; J. F. Deveny, T. N. Hamblen, Jr., D. C. Lyons, S. E. Mallett, I. F. Ross, H. Roth, M. Simring, H. Ward.

NINTH MID-WINTER MEETING

The Ninth Mid-Winter Meeting of the Academy was held on December 4, 1955 at the Hotel New Yorker in New York City.

Scientific Session—The Oral Soft Tissues in Health and Disease

Lester W. Burket ..... Tongue Lesions.
Hamilton B. G. Robinson ..... Deficiency Diseases of the Oral Mucosa.
Edward V. Zegarelli ..... Allergic and Idiosyncratic Lesions of the Oral Soft Tissues.

Committee:

A. DeVanna, Chairman; N. Alderman, Co-Chairman; A. Cannistraci, G. Goldberg, A. Reiner, H. Roth.

FELLOWS OF THE ACADEMY

Samuel Charles Miller, Sidney S. Sorrin, J. Lewis Blass, George A. Bruns, S. Leonard Rosenthal, Louis R. Burman, Allan N. Arvins, William M. Greenhut, Harry Roth, Harold Gelhaar, Albert LaFerriere, Alvin Howard Berman.*

AMERICAN BOARD OF DENTAL MEDICINE AND/OR ORAL MEDICINE

In 1955, the writer of this history was instructed by the Board of Trustees of the Academy to proceed with the incorporation of an American Board of Dental Medicine and/or Oral Medicine. This incorporation was legally completed on December 6, 1955. The incorporators are: Harold R. Gelhaar, William M. Greenhut, Samuel Charles Miller, S. Leonard Rosenthal, and George W. Stewart. The membership of the Board, who will undertake the setting up of standards for certification and a modus operandi, is in the process of formation. Samuel Charles Miller is Chairman. (See President's message on page 48.)

* * * *

The following is a brief history of the formation of each section of the American Academy of Dental Medicine.

* Posthumously.

HONORARY MEMBERS OF THE AMERICAN ACADEMY OF DENTAL MEDICINE

1947	Dr. Walter H. Wright*	1953	Dr. Harold Keith Box
1948	Dr. E. M. Bluestone	1953	Dr. Elmer V. McCollum
1949	Dr. Joseph F. Volker	1953	Dr. Ernestine B. McCollum
1950	Dr. Philip E. Adams	1954	Dr. Gerald D. Timmons
1951	Dr. John A. Kolmer	1954	Dr. Lester W. Burket
1951	Dr. Eli D. Goldsmith	1954	Dr. Raymond J. Nagle
1952	Dr. Ernest Charron	1955	Dr. Albert L. Midgley
1952	Dr. D. Prescott Mowry*		

* Deceased.

MASSACHUSETTS SECTION

The Massachusetts Section sends greetings and good wishes to all our fellow members on this, the tenth anniversary of the Academy.

When the Academy was conceived, it was realized that sectional components must be formed, so that members in various sections could meet frequently, increase their knowledge of Dental Medicine, and stimulate the growth and progress of the Academy.

At the Mid-Winter Meeting in December, 1946, the group of Academy members from Massachusetts had the honor of presenting the first application for a Section Charter.

With the granting of that charter and others, at the Annual Meeting in New York in June, 1947, the strength and scope of the Academy was greatly increased.

At the time the Section Charter was granted, Massachusetts had over thirty members in the Academy.

From the time of its inception, through 1949, the Annual Meetings of the Academy were held in New York. In 1949, the Massachusetts Section issued an invitation to the Academy to hold its 1950 Annual Meeting in Boston. The offer was accepted, and with some misgivings, plans were prepared for the first Annual Meeting of the Academy to be held outside New York.

The world-famous Copley Plaza Hotel, now the Sheraton Plaza was selected for the meeting.

Well known scientists from several of the great research centers presented papers under the general title, "Basic Research as it Affects Dental Medicine."

The meeting was a success and has set a pattern for those that have followed. We hope that we will again have the pleasure of being hosts to the Academy at an Annual Meeting.

Over the years, Massachusetts has been honored by having George A. Burns selected as the fourth President of the Academy, and George F. Clarke as the ninth President. Many of its members have served with distinction as Chairman of Committees and members of the Board of Trustees.

In the future, as in the past, Massachusetts hopes to do its full share in contributing to the growth and prosperity of the Academy.

NEW JERSEY SECTION

During the Spring Season of 1947 a small group gathered at the home of Dr. Harold R. Gelhaar of Upper Montclair to discuss the formation of a section of the American Academy of Dental Medicine. Those present included were Dr. Henry Belasco, Dr. Leslie J. Fitzsimmons and Dr. Gelhaar. The names of others, already members of the parent body, were suggested as a nucleus to form this group and an organization meeting was arranged for October 15, 1947 in Newark.

Dr. Samuel Charles Miller, Past National President of the Academy was invited to attend the gathering and gave freely of his counsel and advice. The formation of a Section to be known as the New Jersey Section of the American Academy of Dental Medicine was

under way and the following men were considered as the official organizers of the group; Dr. Henry Belasco, Dr. Benjamin Lavine, Dr. Abraham Allen London, Dr. Jacob A. Englander, Dr. Norman Vine, Dr. Lester B. Older, Dr. Leslie James Fitzsimmons, Dr. Samuel Harold Levine, Dr. Samuel Turkenkopf, and Dr. Harold R. Gelhaar.

At the Mid-Winter Meeting of the Academy held on December 8th at the Hotel Statler in New York City a request was made by this group for a Charter. The officers of the Section were:

Harold R. Gelhaar.....President
Jacob A. Englander.....President-Elect
Lester B. Older.....Secretary-Treasurer

At this meeting the Charter was granted.

This group gradually became enlarged with men who were enthusistic in the work of the Academy. Regular meetings were held with the National Officers serving as guest speakers and lecturers. Many excellent clinicians appeared before the Section as the years passed on.

In May of 1950, Dr. David Becker, the New Jersey Delegate to the Fourth Annual Meeting to be held in June at Boston, was instructed to issue an invitation to the Academy to hold its Fifth Annual Meeting in Atlantic City, with the New Jersey Section as hosts. Dr. Samuel Turkenkopf and Dr. David Becker were appointed Co-Chairmen and with the membership of the New Jersey group working as a well knit unit a most successful meeting was enjoyed by members of the Academy, their wives and children.

It was at this June, 1951 meeting that Harold R. Gelhaar of the New Jersey Section was honored by being elected President-Elect of the Academy.

Throughout the years an interested group of New Jersey Section men have been active in the affairs of the Academy. Position of responsibility has been held by one as National President and many other men have been members of the Board of Trustees acting as Chairman of important Committees.

Recently a full day Workshop was provided for the group with Dr. J. Lewis Blass as moderator and was a most enjoyable occasion. The New Jersey group is an active component of the American Academy of Dental Medicine with 65 men forming the section. We regret the loss of a few throughout the years but there are new applicants and we welcome them into the Academy and to our Section.

CONNECTICUT SECTION

The Connecticut Section of the American Academy of Dental Medicine officially became part of the national body on June 12th 1948 at a dinner meeting in New Haven. Dr. Edward Fischer was the Section's first President, Dr. Charles Barrett, Vice-president and delegate, Dr. William Rosenfield, Secretary and Treasurer. The charter was presented by Dr. Louis R. Burman, National Representative, who was the guest of honor.

Dr. Charles Barrett followed as our next president, to be succeeded by Dr. Joseph Nassau, and Dr. Lester B. Weiss.

In addition to the national meetings, the section meets about twice a year. They have incorporated a dinner and scientific session with the latter of great value to all members. Last year, an afternoon and evening session at the West Haven Veteran's Administration Hospital was well received and attended by about 85% of the members.

Our aim is to have meetings which will be of value to the dentist, to the patient, and to the betterment of dentistry.

NEW YORK SECTION

The New York Section of the American Academy of Dental Medicine was formed in 1949 and has in illustrious history. Many of the original charter members of the Academy are to be found among its membership as well as many of the past presidents.

The first official roster of the New York Section was compiled in January, 1951 and showed 147 members. Today this total has grown to a membership of 241.

General meetings are held three times a year in October, January and March. The format is usually to have a dinner followed by a business meeting and then an outstanding guest

lecturer. Collations have been held on occasion. The membership has received these meetings very enthusiastically. At the present time the George Washington Hotel is our meeting place.

The listing of our Past Presidents is as follows: 1949-1950: Harry Roth, 1950-1951: Alonzo DeVanna, 1951-1952: Ruth Aaron, 1952-1953: George Witkin, 1953-1954: Harold Brennan, 1954-1955: Abraham Reiner, 1955-1956: Leon Scott.

The present officers in addition to Leon Scott are Theodore Lite, President-elect; Sanford Kirsch, Secretary-Treasurer; and Jack Theaman, Editor.

The New York Section has sponsored the Academy's Mid-Winter Meeting each year. This has grown in size and success with each gathering. In 1955, the New York Section was host for the Academy's Annual Meeting as well.

We are proud to have among our membership numerous Past Presidents of the Academy starting with the first president, Samuel Charles Miller and followed by Sidney Sorrin, J. Lewis Blass and Louis R. Burman.

Among our present national officers are President-elect, William Greenhut; Secretary, George Witkin; and Editor, Irving Yudkoff. A good many of our members are on the editorial board of the Journal of Dental Medicine or hold chairmanships of various Academy committees.

The past years have been full with the achievement of members of the New York Section and we are quite certain that the future will be just as fruitful.

MONTREAL SECTION

On June 15th, 1950 a meeting was held in the Mount Royal Hotel with the following members of the American Academy of Dental Medicine present, Doctors M. B. Archambault, L. S. Eidinger, M. Goldenberg, W. J. Johnson, A. Laferriere, Louis Lepine, H. H. Pearson, G. Plamondon, Louis J. Rosen, N. P. Solomon and W. Walford. It was unanimously agreed to create a section of the Academy in Montreal and to apply for a charter from the parent body.

The second meeting was held on September 7th, 1950 with the following additional members of the Academy present: V. Plamondon, R. E. Lussier, J. Demers, G. Langelier, V. A. Dubé, F. L. Burns, M. H. Robichaud, R. M. Wiener, P. J. Gitnick and D. C. Gordon. It was announced that the Board of Trustees and the general membership of the Academy had unanimously approved the granting of a charter to the Montreal Section. The constitution was then drawn up and voted upon. Election of officers took place with the following results: President: W. J. Johnson; President-elect: H. H. Pearson; Secretary-Treasurer: Albert Laferrière and to the Executive: Frank L. Burns, G. Plamondon and M. Goldenberg.

The Inaugural Dinner took place on September 29th, 1950 at the Windsor Hotel. Dr. Louis R. Burman, National President, presented a charter to the Montreal Section.

On May 29, 30 and 31, 1952 the American Academy of Dental Medicine held its annual meeting in Montreal. This was the first time that an Academy meeting was held outside of the United States. The Co-chairmen of this meeting were Doctors Archambault, Johnson, Laferriere and Pearson. One of the highlights of the meeting was the awarding of Honorary Membership in the Academy to Doctors D. Prescott Mowry and Earnest Charron, Deans of the Faculty of Dentistry of McGill University and the University of Montreal respectively. The meeting was adjudged a marked success socially, scientifically and financially.

To sum up a few of the accomplishments of the Montreal Section, it might be mentioned that Dr. Albert Laferrière, one of our charter members was honored with a Fellowship in the Academy for outstanding service. Dr. Marcel Archambault is now Vice-President of the Academy. Several of our members have served as members of the Board of Trustees and as Chairmen of Committees. The Montreal Section has been presenting a book prize to the graduating student at the University of Montreal and at McGill University who obtains the highest standing in Dental Medicine. The future of the Montreal Section looks bright and it is hoped that our interest will have great influence on dentistry in Canada.

MARYLAND SECTION

The Maryland Section of the American Academy of Dental Medicine was organized in Baltimore on February 14, 1952 by Doctors I. N. Brotman, R. E. Hampson, E. N. Hinrichs Jr., W. I. Levine and the late Dr. Alvin H. Berman. The Section was chartered at the National Convention of the Academy in Montreal in May, 1952. The 1953 Convention was held in Washington, D. C. under the auspices of the Maryland Section. Local meetings of the Maryland Section are held twice yearly and we now have twenty-one members. Our meetings are usually dinner meetings with a guest speaker on a subject of interest in the field of dental medicine.

We hope to expand and include Washington members of the Academy in the Maryland Section. Another objective is to increase the frequency of our meetings.

PHILADELPHIA SECTION

The Philadelphia section of the American Academy of Dental Medicine was chartered on May 30, 1952. The founders were Doctors Jacoby T. Rothner, S. Leonard Rosenthal, Bernard B. Saturen and George G. Stewart.

At that time Bernard Saturen was President, S. Leonard Rosenthal, President-elect and Alex Weinberger, Secretary-Treasurer. The officers in 1953 were: S. Leonard Rosenthal, President; Jacoby T. Rothner, President-Elect; Alex Weinberger, Secretary-Treasurer; and Bernard B. Saturen, delegate. Officers in 1954 were: Jacoby T. Rothner, President; P. George Savitz, President-elect; Alex Weinberger, Secretary-Treasurer; and Delegate, Bernard B. Saturen. The officers in 1955 are: P. George Savitz, President; Seymour Pollak, President-elect; Morris Bradin, Secretary-Treasurer; and Seymour Pollak, delegate.

The Philadelphia Section was an outgrowth of the Philadelphia Society of Periodontology. Since its inception it has arranged a one day program each year for the Periodontal Society. These meetings or symposiums are dedicated to the study of pertinent dento-medical problems. The speakers are of the highest caliber in the medical field. These programs have been very successful in furthering both the interest and knowledge of our members.

MICHIGAN SECTION

The Michigan Section was granted its charter by the Board of Trustees on December 5, 1953 and approved by the Membership of the Academy on December 6, 1953. Its charter members: O. B. Aubin, Dennis Berkoff, Charles M. Conat, William J. Curtiss, Edwin W. Deer, Haig D. Garabedian, Meyer H. Green, Max Hart, Edgar James, Horton D. Kimball, Caryl M. Kulsavage, Henry J. Kruska, James Ladd, Don C. Lyons, Clayton J. Marcereau, George J. Miller, Walter Niemann, Louis Perlman, William T. Quinn, James R. Robinson, Marie R. Salutsky, C. N. Vyn, John M. Wakevainen. The following meetings have been held since the organization of this Section:

January 29, 1954	Charter Presented by the National President.
April 22, 1954	Joint Meeting with the American Academy of Nutrition. Subject—World Food Problems; Dr. R. S. Harris of M.I.T.
May 21, 1954	Periodontal Problems — Dr. Blatz.
November 21, 1954	'B' Vitamins and their Relation to Health—Dr. Hermann Becks.
January 18, 1955	Preliminary Report on "Sterilization of Dentine as an Aid to Preventive Endodontia"—Dr. Walter Niemann.
April 17, 1955	Medical Aspects of the Practice of Dentistry—Dr. Clifford Gurney.

At the April 17, 1955 meeting a motion was made, seconded and passed, unanimously, that an invitation be extended to the Academy that the next Annual meeting be held in the Michigan area. There has been an increasing amount of interest and enthusiasm shown by the members, and we expect this Section to continue to grow.

OHIO SECTION

The Ohio Section was chartered on December 4, 1955 at the Ninth Mid-Winter Meeting

in New York. Its founders were: David Biel, Sam S. Cohen, Harry I. Greenberg, D. A. Paradis, Samuel M. Robbins, Milton R. Segal, Howard F. Snevel, Stephen E. Szabo, Herman C. Weinberg, S. E. Weiser. The following are the officers of the Section:

Samuel M. Robbins ..... Chairman
John K. Dunn ..... Vice-Chairman
Sanford Frumker ..... Secretary-Treasurer

Representatives of Cities:

Howard F. Snevel ..... Cleveland
Samuel E. Weiser ..... Canton
Stephen E. Zabo ..... Dayton
Harry I. Greenberg ..... Cincinnati

Represetnatives at Large:
Nathan I. Galin, D. H. Paradis, Milton R. Segal.

Representatives at Large:
Herman C. Weinberg.

Prior to the granting of the charter, the Section had meetings in conjunction with the Section of Oral and Dental Medicine of the Cleveland Dental Society. Samuel M. Robbins lectured on Cardio-Vascular Disease in Dental Medicine. The Section will hold a meeting one day prior to the Ohio State Dental Society Meeting.

THE FUTURE

As the years progress, the solid ramifications of the Academy will enter into many other sections of the nation and the world. The trend of Dentistry is toward Dental Medicine. It will take its place beside the technological advances of Dentistry. The basic biological, biochemical and physiological courses studied in dental colleges will be more and more utilized to solve oral diseases.

Plans for the next ten years are being evolved in the form of larger Annual and Mid-Winter Meetings. Annual meetings will be held in Detroit in 1956, Boston in 1957, and Atlantic City in 1958. Also planned are additional Sections, an expanded Journal of Dental Medicine, research funds, closer dento-medical relationships, cooperation with the deans of all dental and medical schools in order to encourage the teaching of Dental Medicine, dental college endowments for Oral Medicine, and Residencies in Oral Medicine in hospitals.

Medical Views on Oral Problems

BLACK TONGUE*

To the Editors—*A farmer, aged 51, consulted me in June, 1954, with a "hairy tongue" following the use of penicillin troches. This patient had last taken penicillin troches in December, 1953. I applied 10% sodium hydroxide to the area of the tongue followed by 10% acetic acid. The condition was improved until about two months ago. Is there any more effective treatment, or should this particular treatment be repeated at frequent intervals?*

M.D., Wisconsin.

Answer.—Black tongue (brown tongue, glossophytia, melanoglossia, nigrities linguae) has been described by many writers, but its etiology is unknown. It is usually associated with hypertrophy of the filiform papillae. In cases of extreme hypertrophy, there is an accumulation of matted hair-like processes on the surface of the tongue, and the condition is known as black, hairy tongue. Heavy smoking; dyspepsia; irradiation; various inflammatory lesions; washing the mouth with hydrogen peroxide, boric acid, silver nitrate, or chromic acid; and the use of certain tooth pastes have been rightly or wrongly blamed for the production of black tongue. Since the introduction of antibiotics, black tongue is seen much more often and is regarded as one of the side-effects of the use of the antibacterial agents. It was first reported in connection with the use of penicillin lozenges but has also been noted after parenteral therapy with this agent and after the use of aureomycin, chloramphenicol, and terramycin. Black tongue appears to occur at least four times more commonly after the local application of antibiotics than after they are swallowed or injected.

Although the inquiry suggests that the hairy tongue was associated with the use of penicillin troches, its long duration raises the question of whether this is the only causative agent. It is possible that the lesion is idiopathic. In some instances of hairy tongue following the use of antibiotics, the discoloration has been found to be due to the growth of fungi that produce the pigment. Cultures of the tongue on Sabouraud's medium would be of interest. If mold is isolated, repeated painting of the lingual surface with 1% solution of gentian violet may be of help. Some authorities have suggested the use of ample doses of the vitamin B complex, although there frequently is no conclusive evidence of a vitamin deficiency. As paradoxical as it may appear, several investigators have reported cure of the hairy tongue by the administration of antibiotics. Tomaszewski(*Brit. M. J.* 1:1249-1250, 1953) has recommended the following treatment: Aureomycin or penicillin troches, 10 daily, are given for one week. The tongue is scraped with a slide; after one to three weeks of treatment the brown growth can be scraped off the surface of the tongue with ease. The intensity of the brown color may increase significantly during the first few days of treatment. X-ray treatment of the hairy tongue has been claimed to produce clearing.

* Queries and Minor Notes, J.A.M.A., May 7, 1955, p. 91.

ERYTHEMA MULTIFORME*

To the Editor:—*What is the treatment for erythema multiforme? A 72-year-old man has been getting attacks about once a year, usually in July or August. The first symptoms include severe itching and burning of the eyes (iritis). Within 24 hours there is dermatitis on the right wrist, dermatitis on the fingers, blisters on the glans penis, and ulcerations in the mouth. The most recent attack included exfoliation of the outer layer of the tongue, which is the first time this symptom occurred. The symptoms are usually self-limited—about three weeks. Hydrocortisone is used orally in the eyes and as a decongestant. Meticorten was not used.*

M.D., Pennsylvania.

Answer.—Erythema multiforme is a symptom complex rather than an etiological diagnosis. The cause of this condition varies, and treatment from the standpoint of prevention of further outbreaks, or even to treat intelligently the acute attack, would require study and identification of the underlying precipitating factors. Among the more common causes are bacterial or virus infection, or ingestion of foods or drugs to which the patient may react. A summer recurrence may suggest as a possible cause ingestion of a seasonal food or recurrence of some environmental factor associated with warm weather, such as pollen, plants, or molds that could be absorbed and induce the symptom complex. In the absence of establishing the cause, treatment is purely symptomatic and the following sometime prove helpful: (1) a mild saline cathartic such as milk of magnesia; (2) an antihistaminic given orally, such a triplennamine hydrochloride (50 mg. every six hours) or chlorprophenpyridamine maleate (2 to 4 mg. three to four times daily); or (3) a broad spectrum antibiotic taken systemically, as for example, erythromycin (200 mg. each four to six hours). The hydrocortisone preparations such as given are also effective in affording temporary relief. Because of their side-

effects, the local or topical use is to be preferred over their systemic use. A 1% concentration of hydrocortisone acetate in a water-soluble base is sufficient. If infection is present in the skin lesions, an ointment containing both an antibiotic and an adrenocorticone hormone may be useful, such as Neocortef ointment.

* Queries and Minor Notes, J.A.M.A., Dec. 3, 1955, p. 1423.

RECURRENT PAROTITIS*

TO THE EDITOR:—*What can be the cause of repeated swellings in the parotid gland region in a boy now aged 14, He says that he has had mumps, but on several occasions the parotid glands have been symmetrically enlarged. Last spring he ran a low temperature during the attack. Now he has enlargements on either side, but the swellings are limited by the lower jaws. There is no postaural swellings. His teeth are normal.*

S. B. Ross, M.D., Brewster, N. Y.

ANSWER.—Recurrent parotitis is a recognized condition, the etiology of which is not related to mumps. Attacks may occur at intervals of weeks or months and the swelling may involve one or both parotids. The general health of the patient may be excellent with no evidence of throat or tonsil infections. However, Micrococcus (Staphylococcus) aureus may be found in pus that can be expelled from Stensen's duct by massaging the parotid gland. But Bigler (Recurrent Parotitis, *M. Clin. North America* 30:97 [Jan.] 1946) has reported 60 cases, and in every instance Streptococcus viridans was cultured from pus at the duct opening. The disease may vary greatly. There may be little or no elevation of temperature. There is no specific treatment. X-ray therapy has been resorted to with questionable results.

* Queries and Minor Notes, J.A.M.A., Dec. 24, 1955, p. 1700.

THE CLEFT LIP—CLEFT PALATE PROBLEM*

The authors analyze results obtained in 750 patients with cleft lip—cleft palate operated on during the last decade at the Indiana University Medical Center. Good surgical correction of the deformity is the chief factor in the rehabilitation of these patients. No single operation is adequate for all cases. The procedures that have given the best result for the various types of deformity are outlined. Much of the cleft lip-cleft palate surgery in the past has resulted in bad residual defects. Some of the surgery has resulted in the destruction of valuable tissue with excessive scarring and growth disturbance in the upper jaw and teeth. The cleft lip-cleft palate surgery of the present day is not producing serious growth disturbance in the maxilla. Orthodontia is a valuable adjunct in the rehabilitation of the cleft lip-cleft palate patient, but there are definite limitations in this field that must be recognized. Many of these patients have teeth so defective that orthodontia is futile. Fortunately these defects can be corrected by dental prosthesis. Speech therapy is an important factor in rehabilitation of the cleft palate patient. In the majority of cases, a good surgical repair at 18 months to 2 years of age gives good speech without specialized speech training, but the patient with a marked hypoplastic palate usually does not get good speech without the help of a speech therapist. Hearing defects have been a frequent cause of bad speech in cleft palate patients in the past. They are usually associated with repeated infections of the middle ear. It is not necessarily an integral part of the deformity. Early closure of the clef tpalate with careful dissections and the aid of antibiotics reduces the incidence of this complication.

By H. M. Trusler, T. B. Bauer and J. M. Tondra. Plast. & Reconstruct. Surg. 16:174-188 (Sept.) 1955 [Baltimore].

* Medical Literature Abstracts, J.A.M.A., Dec. 17, 1955, p. 1570.

CHILDREN WHO TAKE NO COD-LIVER OIL*

W. T. C. Berry and his co-workers (*Month. Bull. Min. Health* 14:162, 1955) have studied a group of 37 children (aged 12 to 25 months), 27 of whom had never had any cod-liver oil or proprietary substitute. The other 10 had had an average of less than 30 days' administration at the recommended level. These children were compared with a control group of 50 children of the same age range, who had had at least one teaspoonful of cod-liver oil for five days in each week for at least six months. The investigation was carried out in a smoky industrial town at the end of the winter. Only 12 (32%) of the children who did not take codliver oil were found to be in good condition, compared with 34 (68%) of the controls. Comparably, only 13 (35%) were above the expected weight for their age, compared with 28 (56%) of the controls. There was no difference in the level of tooth eruption compared with what might be expected at this age, but, of children over the age of 18 months, 71% of the study group had open fontanels, compared with 54% of the controls. No definite rickets was found in either group, but in six children in the study group, an early stage of rickets was suspected clinically. Neither healed nor active rickets was present in roentgenograms of the wrists in either group, and there was no significant difference in the mean serum alkaline phosphatase levels in the two groups.

Twenty-seven children in the study group during most of the first year of life had been reared on some form of dried or evaporated milk, and their average daily intake of vitamin D was estimated to be about

700 I. U. over the whole of the first year of life, most of it being taken during the first seven or eight months. For this period of life the amount recommended by the British Medical Association is 800 I. U. daily, and that recommended by the National Research Council of the United States is 400 I. U. daily. Of the other 10 children in the study group, one was breast-fed and his daily intake of vitamin D was estimated at 130 I. U. daily. The other nine were breast-fed for a few weeks and then switched to liquid cow's milk. Their average daily intake of vitamin D during the first year of life was estimated at 300 I. U. As a group these 10 children were no more underweight than the other 27, and only one was regarded as possibly having rickets, compared with 5 among the 27. During the second year of life all but one of these children had ceased to take dried milk and cereal, and their average intake from margarine, butter, and cow's milk was judged to be not more than 25 I. U. daily. Both the British Medical Association and National Research Council's requirements are 400 I. U. daily at this stage. The control group received about 450 I. U. daily.

Despite their low intake, none of the study group showed evidence of hypovitaminosis D, either past or present. The fact that they were less well developed than the control group may well have been due to some other aspect of parental neglect, especially as some of them were from "problem families." The requirements for the second and subsequent years of life should be reevaluated, because the attempt to meet British Medical Association recommendations imposes a burden on local authorities. Of those who did not get the cod-liver oil made available by welfare agencies, nearly 75% were protected by dried milk. On the other hand, the 27 children receiving dried milk obviously received abundant vitamin D from various sources; the question therefore arises whether others who receive similar diets, plus cod-liver oil, may not receive too much vitamin D. This is the more likely because the children receiving dried milk ingest much more calcium than children fed on milk from the breast. Several of the children in this study, had they been taking cod-liver oil, would have been taking about 2,300 I. U. daily at the age of 6 months, and the minimum level of daily vitamin D intake at which toxic symptoms may occur is about 2,000 I. U.

* Foreign Letters, J.A.M.A., Jan. 7, 1956, p. 72.

AURICULOTEMPORAL SYNDROME*

Two patients exhibited profuse sweating limited to the temporal region on one side. The sweating accompanied salivation during the mastication of food and necessitated wiping the area repeatedly at every meal. In both patients there was a history of parotitis following abdominal surgery. Tests with acetylcholine, pilocarpine, and histamine in one patient led to the conclusion that, in the process of recovery from parotitis, regenerating parasympathetic salivary fibers must have been misdirected into the sweat glands, which normally have a sympathetic innervation, and that these responded thereafter in a manner to be expected from their abnormal, dual nerve supply. Both patients were relieved permanently of this annoying syndrome by intracranial division of the glossopharyngeal nerve.

* By W. James Gardner, M.D. and James W. McCubbin, M.D., J.A.M.A., Jan. 28, 1956, p. 272.

Book Reviews

Oxygen Insufflation in Periodontal Disease, by Harold Keith Box, D.D.S., Ph.D., Charles C. Thomas, Springfield, Ill., 1955, 94 pages.

In this brief volume of 94 pages, the author does not really discuss the value of oxygen therapy.

The first two thirds of the book deals with the author's classification of periodontal disease, nomenclature and etiology. A new classification by Dr. Box does not add to simplicity but rather complicates our already complex classifications.

The latter third of the text indicates the techniques of oxygen insufflation and the method of treatment based on the author's new classification. The supporting evidence for the use of oxygen therapy does not seem to be definite for the author states in his concluding paragraphs that further investigation is necessary.

LOUIS R. BURMAN

Die Mund und Rachenkrankheiten. (Diseases of the Mouth and Pharynx) by Prof. Dr. C. R. Griebel, George Thieme Verlag, Stuttgart 1954. DM 29.

The present volume contains short descriptions of the common diseases encountered in the field of oral medicine. Each disease entity is briefly described as to etiology, symptomatology and treatment procedures.

Illustrations accompany much of the text. The clinical photographs are very adequate; however, the diagrammatic drawings both in color and black and white are consistently poor.

The American practitioner will be particularly interested in the treatment procedures advocated, since many of them are at variance with standard techniques employed in this country. In this regard, it is unfortunate that many of the drugs recommended are listed by German trade names rather than actual

content, thus making for poor understanding of treatment to one not familiar with these drugs.

Each chapter contains a bibliography of pertinent recent European and American literature. The book will serve as a valuable compilation of the German concept of diagnosis and treatment of oral diseases.

S. SIGMUND STAHL

The Dynamics of Living Protoplasm, by L. V. Heilbrunn, Academic Press, Inc., New York, $6.50.

Dr. Heilbrunn is a well known scholar and so his scientific story is always welcome. In this new monograph he shows how our present knowledge of the colloid chemistry of protoplasm helps to interpret puzzling problems in physiology. Protoplasm is evaluated primarily from the standpoint of energetics. The author interprets our current concepts of protoplasm, gels, viscosity, electro-chemistry, surface precipitation, nerve excitation, conduction and transmission, cell division and homeostasis. This illuminating presentation reveals the basis for understanding the mechanisms underlying vital activity. Some pertinent conclusions indicate that the hyaline part of protoplasm is fluid and the outer part a rigid cortex containing calcium bound to protein and to lipid. The cortex thus serves as a calcium electrode essential for the electrochemical behavior of the cell operation in conjunction with the chloride electrode in the interior of the cell. When a cell is exposed to stimuli, the cortex is liquified, calcium released into the interior, the outer region becoming electro-negative. The entrance of calcium into the interior activates the enzyme and clotting mechanisms which initiate a chain of oxidative reactions. These, and many other concepts, are put forth in this *Dynamics of Living Protoplasm,* a stimulating thesis invaluable in planning physiologic research.

I. NEWTON KUGELMAS, M.D.

Accepted Dental Remedies, American Dental Association, Chicago, Ill., 21st Edition, 1956, $2.00.

This volume, the 1956 edition, exemplifies the importance of regular growth in the importance of an annual publication. The information contained is based largely on material obtained from published scientific reports and aims at the well-attained goal of giving only authoritative information.

The precise manner in which this text is written and the new views presented as they are discovered makes each succeeding issue worth the small cost and the time of reading.

Much information on pharmacology, therapeutics and clinical dentistry is correlated to bring to the reader a scientific compendium on drugs useful in the practice of dentistry. Rational therapeutics and safety are the keynotes for evaluation of the drugs and formulae described. As in the case of previous frequently used drugs as arsenic, bismuth, boric acid, the dyes and some others, frank appraisal suggests the need for a second look at their purported value. The dangers inherent in the application of other preparations is made plain in each case where such danger exists.

J. LEWIS BLASS

Dentistry—As I See It Today, by A. Leroy Johnson, D.M.D., A.M., D.Sc., Little Brown and Company, Boston, 1955, 54 pages.

This book by Dr. A. Leroy Johnson, formerly Dean of the Harvard School of Dental Medicine, is based on his experience of over fifty years in dentistry. Having started as a dental laboratory mechanic, Dr. Johnson's career following graduation from dental school included general practice, orthodontics, teaching, research and administration. As mentioned in the introduction, professional activities are usually divided into practice, teaching and research. It is seldom that so excellent a blend of all three are found within the experience of one man.

The contents of the book include chapters on Premature Specialization, Abbreviation of the Biological Sciences, Research, Medicine versus Dentistry, and the Harvard Project. The author states that very often only those phases of the biological sciences believed necessary for present practice routines are included in dental school curriculums. Students are not aided to develop an understanding which will enable them to evaluate and utilize new knowledge in the years ahead. Dr. Johnson also contends that research scientists will continue to shy away from dental schools until academic adjustments are made which will allow the dental schools to share equally with other health institutions the intellectual resources of the university. The dependence on government and industry for funds tends to sap vitality from research projects.

This book is a tribute to its author. For those interested in the future development of the dental profession, Dr. Johnson's presentation will be of particular significance.

GEORGE J. WHINSTON

Year Book of Dentistry, (1955-1956 series) Edited by Tylman, S. D., Keys, D. A., Knutson, J. W., Noyes, H. J., Robinson, H. B. G., and Waldron, C. W. The Year Book Publishers, Chicago, 461 pages, illustrated, $6.00.

This volume, as did its preceding series, contains the abstracted texts and illustrations of hundreds of articles of journals received by the publishers from September 1954 through August 1955.

The subjects cover all branches of dentistry and related fields, i.e., nutrition, dermatology, etc. A succinct but "meaty" portion of each article is included, and the reader desiring to pursue the subject further may refer to the original article for a more complete

exposition. The original source is given in each case. At the end of each abstract is a brief editorial comment by one of the editors expert in the particular field.

It would be impossible for today's busy practitioner to peruse even a fraction of the journals used in this work. To have such an outstanding group of editors select the most important and timely papers for us is a distinct advantage to the dentist who must keep pace with advances in his profession.

ALLAN N. ARVINS

Time To Tell, by Benno E. Lischer, Vantage Press, New York, 1955, 106 pages, $2.50.

This short book is a collection of essays and speeches delivered at one time or another by a well qualified orthodontist. The author not only deals with his own specialty, but covers many other aspects of dentistry including chapters on a university dental education, an appreciation of dentistry and dentistry as a profession.

It would seem to this reviewer that the chief function of this book is a guide to students about to begin dental education and perhaps students attempting to decide what profession to choose. For truly this book carries great inspirational appeal. The style is good and the contents are well documented with bibliographic references.

In the chapter on university dental education he writes: . . . "What should be the primary objective of a university undergraduate course of dental education? Shall it continue to be the training only of finished craftsmen in operative and prosthetic dentistry so that they may eke out a more profitable, perhaps more dignified existence than would have been their lot had they gone instead into the trades or industry? Shall these young men and women who graduate from our school spend the rest of their days in merely repairing lesions caused by oral diseases, and thus continue to lose intellectual integrity by forever seeking refuge in that false haven of security implied in the slogan: 'A clean tooth never decays'? Or, shall they have a well-balanced, fundamental education in the sciences of dentistry and medicine?"

Is this not another reminder of the need for more training in Periodontia and Oral Medicine?

NATHAN WACHTEL

Academy Proceedings

NEWLY FORMED OHIO SECTION

(L. to R.) Samuel Robbins, President; Bernard Zulewski, David Biel, Sanford Frumker, Dr. Louis Rakita, essayist at the February 1, 1956 meeting of the Ohio Section; Howard F. Snevel, Henry Sazima, John K. Dunn, Secretary; William Ream, Vice President and Frank P. Mandel.

MASSACHUSETTS SECTION

The Massachusetts Section held its election of officers at the January 22, 1956 meeting. The following were elected:

President	Dr. Arthur Gold
Vice-president	Dr. Earl Stone
Secretary-treasurer	Dr. Clayman C. Levy

Dr. George F. Clarke, past national president of the Academy, announced that the Massachusetts' bid for the Eleventh Annual Convention had been accepted for 1957. Dr. Clarke and Dr. George A. Bruns have been appointed co-chairmen and plans are already in progress for a successful meeting.

EARL STONE

1955-1956 NATIONAL OFFICERS

(L. to r. seated) Marcel B. Archambault, Vice-President; S. Leonard Rosenthal, President; William M. Greenhut, President-Elect; (l. to r. standing) Irving Yudkoff, Editor; George G. Stewart, Treasurer; and George J. Witkin, Secretary.

NEW JERSEY SECTION SPONSORS WORKSHOP

The New Jersey Section of the American Academy of Dental Medicine will hold a Workshop on "Focal Infection with Relation to Dental Medicine" on April 15, 1956 at the Hotel Douglas, Newark, New Jersey. The moderator of this spring meeting will be Dr. Paul Boyle. The leaders of the five table groups include: Endodontia—Dr. I. B. Bender; Internal Medicine—Dr. J. Reuben Budd; Periodontia—Dr. Allan N. Arvins; Oral Surgery—Dr. Martin S. Protzel and Pathology—Dr. George Stein.

All members of the Academy and their friends are cordially invited.

ACADEMY PAST PRESIDENTS

(L. to R., seated) Samuel Charles Miller, Sidney Sorrin, J. Lewis Blass, and George A. Bruns. (L. to R., standing) Louis R. Burman, Harold R. Gelhaar, George F. Clarke, and S. Leonard Rosenthal, present president. Gordon R. Winter and Alvin H. Berman, also past presidents, are deceased.

JOURNAL OF DENTAL MEDICINE STAFF

(L. to R., seated) S. Leonard Rosenthal, Associate Editor; Allan N. Arvins, Consultant Editor; Irving Yudkoff, Editor; J. Lewis Blass, Associate Editor. (L. to R., standing) Nathan Wachtel, Assistant Editor; George J. Whinston, Assistant Editor; Marvin N. Okun, Assistant Editor; George J. Witkin, Assistant Editor; and Alexander Soberman, Assistant Editor. Arthur N. Yohai, Assistant Editor, is not in this photograph.

Announcements

POSTGRADUATE TRAINING IN PERIODONTIA AND ORAL MEDICINE
NEW YORK UNIVERSITY COLLEGE OF DENTISTRY

The following postgraduate courses in Periodontia and Oral Medicine will be offered at the New York University College of Dentistry and will be given by Dr. Samuel Charles Miller and Staff:

No. 124. REFRESHER COURSE IN PERIODONTIA AND ORAL MEDICINE
Ten sessions, Wednesdays, 4:00 to 6:00 P.M.
February 27, 1957 to May 8, 1957.
Tuition and books. $156.00. Instruments approximately $55.00.

Theoretical and practical application of periodontal diagnosis and techniques to general dentistry. Four lecture and six clinical demonstration sessions. Equilibration of occlusion is performed by the student on casts. Patient demonstrations include equilibration of occlusion, conservative and radical therapy, home care, etc.

No. 123. PERIODONTIA AND ORAL MEDICINE IN THE SPANISH LANGUAGE
Four weeks, Monday through Friday, 9:00 A.M. to 4:00 P.M.
April 2 to April 27, 1956 inclusive.
Tuition including books and instruments approximately $385.00.

Theoretical and practical application of Periodontia and Oral Medicine is fully explained and demonstrated. Equilibration of occlusion is performed by the student on casts. Lectures and clinical demonstrations of diagnosis and treatment planning, conservative and radical techniques, equilibration of occlusion, home care, etc. The entire course is conducted in the Spanish language.

No. 122. COMPREHENSIVE PREPARATION IN PERIODONTIA AND ORAL MEDICINE

No. 122 A. One academic year, full time. September 17, 1956 to May 24, 1957.
Tuition $1,010.00. Instruments and books approximately $135.00.

No. 122 B. Two academic years, full time. September 17, 1956 to May 23, 1958.
Tuition $1,770.00 (two years). Instruments and books approximately $231.00.

No. 122 C. Two academic years, half time. September 17, 1956 to May 23, 1958. (Two and one half days weekly.)
Tuition $1,010.00 (two years). Instruments and books approximately $135.00.

No. 122 D. Four academic years, half time. September 17, 1956 to May 28, 1960. (Two and one half days weekly.)
Tuition $1,770.00 (four years). Instruments and books approximately $231.00.

These courses are designed for comprehensive preparation in Periodontia and Oral Medicine and are of particular significance for certification towards specialization. All didactic and clinical phases are covered with the objective of developing expert proficiency.

ANNUAL WORKSHOP
NEW YORK UNIVERSITY COLLEGE OF DENTISTRY

Subject: Occlusal equilibration.

An intensive participation course of five days, including theory, patient demonstration, participation on models, relationship to general dentistry and seminar workshop sessions.

A social program is included.

Date: June 11-15, 1956 inclusive.

Fee: $200 including textbook, instruments, and social program.

This course will be given by Drs. S. C. Miller, S. Sorrin, J. L. Blass, W. M. Greenhut, H. Roth, A. Goldstein, A. N. Arvins, L. R. Burman, G. J. Witkin, J. N. Obin, M. Hollins, M. Simring, and I. Yudkoff.

Further information concerning the courses listed above can be obtained by writing to the Secretary, Postgraduate Division, New York University College of Dentistry, 209 East 23rd Street, New York 10, New York.

SEVENTH ANNUAL BERKSHIRE CONFERENCE IN ORAL PATHOLOGY AND PERIODONTOLOGY

The Division of Graduate and Postgraduate Studies of Tufts University School of Dental Medicine will conduct the Seventh Annual Berkshire Conference in Oral Pathology and Periodontology at Eastover in Lenox, Mass., June 17-21, 1956. The Conference will consist of four days of lectures, seminars, and panel discussions regarding the clinical problems by outstanding teachers and clinicians in dentistry, medicine and their related fields. A special feature of the Conference will be a clinico-pathological seminar with microscopes provided for all participants.

The curriculum is arranged so that mornings and evenings are devoted to professional activities with afternoons open for recreation. This is a conference for general practitioners as well as those interested in a specialized practice.

For further information and application write to: Seventh Annual Berkshire Conference, Tufts University School of Dental Medicine, 136 Harrison Avenue, Boston, Mass.

THE AMERICAN INSTITUTE OF DENTAL MEDICINE CASE HISTORY SERVICE

The Institute continues to offer Case Histories from the broad field of Dental Medicine for the year 1955-56. These will include original 3 mm. Kodachrome slides of the oral condition, pertinent laboratory findings, medical background, roentgenograms, histologic slides, photomicrographs, diagnostic criteria and whatever else may be indicated in each individual case. A loose leaf binder and matching Kodachrome slide box will be furnished each participant. The fiscal year of the Institute begins October 1st.

Anyone subscribing to this case history service is entitled to full membership in The American Institute of Dental Medicine. Members of the A.D.A. or A.M.A., or their foreign equivalent, are eligible to apply.

For further information address all communications to the Secretary, Mrs. C. Novembri, 2240 Channing Way, Berkeley 4, California.

THE AMERICAN INSTITUTE OF DENTAL MEDICINE

The next Annual Meeting of the Institute will take place at El Mirador, Palm Springs, California, November 4 to 8, 1956.

All Seminar lecturers will participate in a round table forum discussing the application of their subject to the practice of Dental Medicine. Because of the mounting interest in this annual meeting of the Institute, early registration is indicated. Applications and full information may be secured from the Executive Secretary, Miss Marion G. Lewis, 2240 Channing Way, Berkeley 4, California.

TEMPLE UNIVERSITY SCHOOL OF DENTISTRY

The Department of Postgraduate Studies announces a Four-Day Participating Course, May 3, 4, 5, 6, 1956 in "Occlusion and What To Do About It", under the direction of Bernard Jenkelson, D.M.D., of Seattle, Washington.

The course is limited to 20 members, and the fee is $100.00.

Make checks for deposit payable to:

Dr. Louis Herman, Director of Postgraduate Studies, Temple University School of Dentistry, 3223 North Broad Street, Philadelphia 40, Pennsylvania.

UNIVERSITY OF PENNSYLVANIA

The Graduate School of Medicine of the University of Pennsylvania and the Riesman Dental Clinic, Beth Israel Hospital, Boston, Massachusetts announce the twenty-month graduate training program in Periodontology. This course is under the chairmanship of Professor Henry M. Goldman.

This course consists of one academic year at the Graduate School of Medicine, with emphasis in the sciences basic to dentistry and clinical periodontology. The second year, at Beth Israel Hospital, will be devoted primarily to the clinical practice of this specialty and to research. A certificate will be awarded at the end of the second year upon successful completion of the course.

This plan meets the standards of graduate education of the American Board of Periodontology. It is designed for those interested in teaching as well as in specialized practice.

UNIVERSITY OF ALABAMA SCHOOL OF DENTISTRY

Dr. Harry Sicher will present two courses at the University of Alabama School of Dentistry. The first course will be entitled "Surgical Anatomy of the Head and Neck," to be presented May 7th, 8th, and 9th, 1956. The second course, "Etiology and Diagnosis of Pain of Dental Origin," will be given May 10th and 11th, 1956. Information regarding these courses may be obtained by writing to Dr. J. P. Lazansky, Director of Postgraduate Education, University of Alabama School of Dentistry, Birmingham 3, Alabama.